



## EN ESTE NÚMERO

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

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

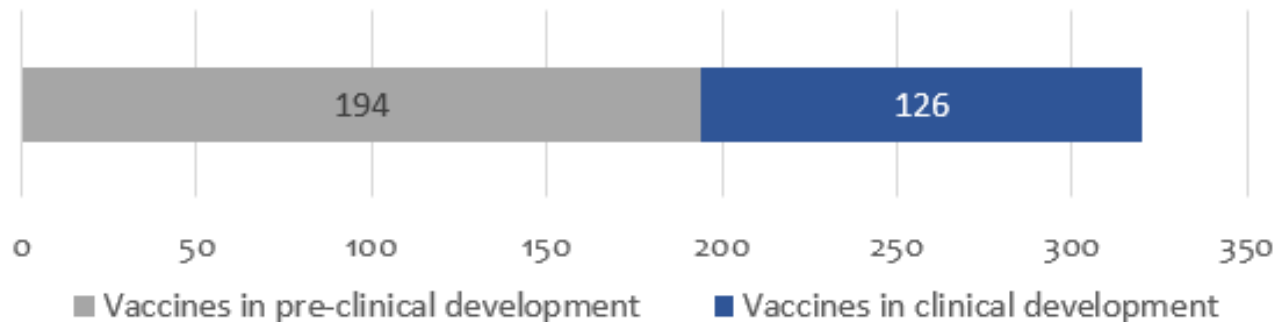
## Resumen de la información publicada por la OMS sobre los candidatos vacunales contra la COVID-19 en desarrollo a nivel mundial

Última actualización por la OMS: 8 de octubre de 2021.

Fuente de información utilizada:



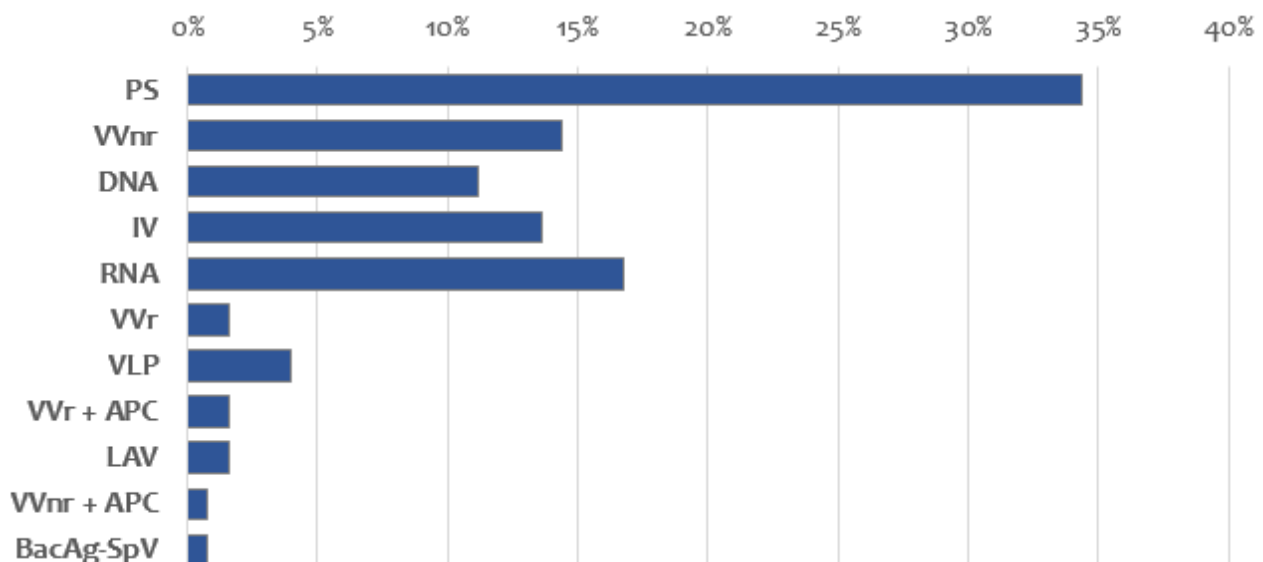
126 candidatos vacunales en evaluación clínica y 194 en evaluación preclínica.



### Candidatos vacunales en evaluación clínica por plataforma

Platform	Candidate vaccines (no. and %)
PS	Protein subunit 43 34%
VVnr	Viral Vector (non-replicating) 18 14%
DNA	DNA 14 11%
IV	Inactivated Virus 17 14%
RNA	RNA 21 17%
VVr	Viral Vector (replicating) 2 2%
VLP	Virus Like Particle 5 4%
VVr + APC	VVr + Antigen Presenting Cell 2 2%
LAV	Live Attenuated Virus 2 2%
VVnr + APC	VVnr + Antigen Presenting Cell 1 1%
BacAg-SpV	Bacterial antigen-spore expression vector 1 1%

126



## Candidatos vacunales más avanzados a nivel global

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

## Candidatos vacunales mucosales en evaluación clínica

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

## Noticias en la Web

### Ofrecen detalles sobre el ensayo clínico Soberana Plus Pediatría

**1 oct.** Especialistas del Instituto Finlay de Vacunas (IFV) y el Ministerio de Salud Pública ofrecieron detalles sobre el ensayo clínico con la vacuna Soberana Plus en convalecientes de COVID-19 en edad pediátrica, denominado Soberana Plus Pediatría.

El ensayo constituye un estudio fase I/II abierto, adaptativo, para evaluar la seguridad, reactogenicidad y la inmunogenicidad de la formulación en ese grupo poblacional, y es posible gracias al autorizo de uso en emergencia del producto, emitido recientemente por el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED).

La vacunación con este inmunógeno comenzará la próxima semana sin el uso de placebo, y comprenderá a 520 niños y adolescentes con dos meses o más de recuperados, que fueron diagnosticados con COVID-19 mediante prueba de PCR.

El reclutamiento comienza mañana en el Hospital Pediátrico Juan Manuel Márquez, de esta capital, a partir del registro de los convalecientes y el 5 de octubre comenzará la aplicación de la dosis única, con la participación de 40 individuos (20 de edades de 2 a 11 años y 20 de 11 a 18), divididos por igual en sintomáticos y asintomáticos, y con la inclusión de quienes sufrieron la enfermedad como leves, graves y críticos.

A ellos se les dará seguimiento en los primeros 60 minutos tras la inyección, y en 24, 48 y 72 horas posteriormente, además se evaluará su evolución al séptimo día y se realizarán análisis de sangre de manera aleatorizada a los 14 y 28 días.

Luego en la fase II, reunidas las evidencias de seguridad clínica y con la aprobación del CECMED, intervendrán los 480 sujetos restantes, en el Juan Manuel Márquez y en el Hospital Pediátrico Universitario Paquito González Cueto, de Cienfuegos.

Durante la fase II el objetivo fundamental será analizar la inmunogenicidad y se prevé que a mediados de noviembre se tengan los resultados finales.

El doctor Rinaldo Puga Gómez, investigador principal del ensayo clínico, explicó a la prensa que los criterios de inclusión abarcarán la voluntariedad expresada mediante consentimiento informado, la aprobación de los padres o tutores legales, la valoración nutricional, exámenes físicos, resultados de laboratorio y el uso de métodos anticonceptivos (en el caso de las adolescentes en edad fértil).

Agregó que se excluirán quienes hayan recibido alguna dosis de candidatos vacunales o vacunas contra el SARS-CoV-2, hayan presentado enfermedad febril o infecciosa aguda en los siete días previos a la administración de la vacuna o en el momento de su aplicación, o tengan tratamiento con antimicrobianos o con medicamentos antiinflamatorios no esteroideos.

Tampoco podrán incluirse sujetos con enfermedades crónicas no transmisibles no controladas, con padecimientos del sistema inmune congénitos o adquiridos, con antecedentes de enfermedad



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neoplásica, con abuso de sustancias tóxicas durante los últimos 30 días o enfermedad adictiva a sustancias tóxicas, excepto el tabaquismo.

Otros criterios de exclusión se relacionan con facultades mentales disminuidas, alergias severas, participación en otro ensayo clínico de intervención preventiva o terapéutica en los últimos tres meses, la aplicación de otra vacuna, el tratamiento con inmunomoduladores, transfusiones de sangre o hemoderivados, embarazo, puerperio o lactancia o tatuajes en la región deltoidea de ambos brazos.

La composición de Soberana Plus consiste en dos moléculas de RBD (formato dimérico) adyuvadas en hidróxido de aluminio, misma formulación que se aplica en el esquema heterólogo de Soberana 02 más Soberana Plus, y el producto que de manera independiente se emplea en la población adulta convaleciente de COVID-19.

Fuente: ACN. Disponible en <https://cutt.ly/tE7Zz6e>

## Nicaragua autoriza uso de vacunas anticovid de Cuba

**2 oct.** El conglomerado público BioCubaFarma informó este sábado que las vacunas cubanas, Soberana 02 y Abdala, recibieron la autorización para el uso de emergencia en Nicaragua este viernes, también confirmado por el Ministerio de Salud del país centroamericano.

De acuerdo a BioCubaFarma, cuyos centros investigadores fueron los encargados de desarrollar los cinco candidatos vacunales, la autorización se dio conforme con los requisitos de calidad, seguridad y eficacia establecidos por las Normas Técnicas nicaragüenses.

La entidad precisa que la certificación otorgada por la Autoridad Regulatoria nicaragüense indica que las vacunas Soberana 02 y Abdala, se ofrecen como una herramienta terapéutica de acceso seguro para disminuir la transmisibilidad de la COVID-19, producida por el virus SARS-Cov-2.

Por su parte, el Ministerio de Salud nicaragüense, al confirmar la noticia, explicó que las vacunas cubanas serán utilizadas, a partir del 20 de octubre, en la población pediátrica de 2 a 17 años de edad, siempre y cuando los padres autoricen la vacunación de sus hijos.

Ambas vacunas ya se utilizan en población pediátrica en Cuba, sobre todo la Soberana02, la cual surgió de una plataforma tecnológica de vacunas infantiles desarrolladas por el Instituto Finlay de Vacunas, especializado en desarrollar vacunas conjugadas y múltiples.

El Instituto Finlay de Vacunas y el Centro de Ingeniería Genética y Biotecnología, son los desarrolladores de vacunas del conglomerado BioCubaFarma.

Nicaragua se convierte así en el cuarto país en autorizar vacunas cubanas; antes lo hicieron Irán (Soberana02, además producida allí), Venezuela (Soberana02 y Abdala) y Vietnam (Abdala), en cuyos territorios ya se aplican dosis de estos inmunógenos.



Desde septiembre, las autoridades farmacéuticas cubanas dialogan con la Organización Mundial de la Salud, para incluir las vacunas cubanas en las lista de fármacos autorizados y, al entrar en la lista de precalificación, poder ser ofertadas en el Fondo Rotatorio de la entidad en la región de las Américas.

El esquema de Soberana02+SoberanaPlus demostró un 92 por ciento de eficacia en ensayos clínicos frente a la enfermedad sintomática, mientras que Abdala, en uso masivo en Cuba (más de 20 millones de dosis) demostró una efectividad del 90 por ciento frente a la muerte, en un contexto de circulación de la variante Delta.

Fuente: teleSURtv.net. Disponible en <https://cutt.ly/5E7XRhZ>

## ¿En qué momento se olvidó que las vacunas salvan vidas?

2 oct. Se nos ha olvidado que las vacunas vinieron a salvar vidas y erradicar enfermedades que mataban año con año millones de personas alrededor del mundo. La viruela, la polio, la difteria, el tétanos, la tosferina, las hepatitis A y B, la paroditis, el neumococo, la influenza, el rotavirus, el sarampión, la meningitis, en fin, enfermedades que cobraban la vida especialmente de niños como mi hermano Marco, quien murió asfixiado en los brazos de mi padre víctima de la polio.

Se nos han olvidado las secuelas de los sobrevivientes de la polio, los rostros marcados por la viruela, la forma como morían las víctimas del tétanos en medio de espasmos y contracciones musculares o la disfunción cerebral que causa la mortal rabia.

Se nos ha olvidado todo esto porque las vacunas han venido a ser la respuesta de la ciencia para prevenir y combatir enfermedades como el cólera que en el pasado llenaban de luto y dolor a los hogares.

No es sino hasta ahora que volvemos a sufrir una pandemia de nivel global, algo para la cual no estábamos preparados, pues más allá del desarrollo mismo de la vacuna, la crisis se fortaleció ante una sociedad dividida en la que la credibilidad de la ciencia se ha visto minada con absurdas teorías de conspiración, que van desde la participación de los extraterrestres en la implantación de chips hasta la destrucción de ADN. No ha faltado la politización del tema, la negativa de grupos fundamentalistas y la desinformación que a través de las redes sociales ha logrado sembrar miedo, desconfianza y recelo entre miles de personas que han olvidado cómo moría la gente antes de contar con las vacunas.

Las estadísticas hablan por sí solas, las personas vacunadas corren un menor riesgo de ser hospitalizadas, de sufrir graves secuelas o morir asfixiadas. De acuerdo con el Semanario Universidad, de cada 1.000 infectados, 14 tenían una vacuna y solo 3 tenían el esquema de vacunación completo. Lo que significa que la probabilidad de contagio en aquellos que tienen el esquema completo se reduce a casi un 97%.

Por décadas hemos tenido la oportunidad de vacunarnos y vacunar a nuestros hijos, la mortalidad infantil disminuyó y la expectativa de vida aumentó a partir de las campañas de inoculación que ayudaron a la erradicación de muchas de las enfermedades infectocontagiosas y pocos, muy pocos ponían en duda los beneficios de la vacunación y su efectividad.

Todo cambió cuando, en 1998, un médico de apellido Wakefield publicó un artículo en la revista *The Lancet* afirmando que la triple vacuna, rubeola, sarampión y paperas, provocaba autismo. Y aunque más tarde se demostró que el artículo ocultaba intereses económicos poco éticos y Wakefield se retractó, el daño ya era irreparable. En los años siguiente el movimiento antivacunas ha hecho uso de estos falsos argumentos, lo que ha provocado el resurgimiento de enfermedades como el sarampión en Europa.

Las disposiciones adoptadas por las autoridades, como el uso de mascarilla, el lavado de manos y la vacunación, no son medidas antojadizas, son decisiones que se adoptan con criterios sanitarios con base en estudios científicos.

No sé desde cuándo se dejó de creer en la ciencia, pero ante la negativa de aquellos que se niegan a recibir la vacuna, las autoridades con el aval de la Sala Constitucional han comenzado a imponer la obligatoriedad de contar con el esquema de vacunación en el sector salud. A esta disposición se ha adherido la Universidad de Costa Rica y no dudo que pronto ministerios, instituciones, empresas se unirán con el fin de bajar los contagios y reducir la ocupación hospitalaria.

Las personas tienen el derecho a no creer en la vacunación, pero su derecho no es absoluto ni les da autoridad para poner en riesgo la vida de terceros, para saturar los centros de salud por su negativa o para contribuir a la propagación del virus.

Costa Rica enfrenta una grave crisis sanitaria, nuestro sistema de salud puede colapsar y pareciera que algunos han olvidado que las autoridades tienen solo parte de la responsabilidad y que nosotros, los ciudadanos, compartimos la responsabilidad de hacer lo que esté a nuestro alcance para frenar el contagio. La vacuna no solo protege, vacunarse es un acto de solidaridad, responsabilidad ciudadana y respeto para con aquellos que son más vulnerables y propensos al contagio y una forma de agradecer al cuerpo médico y de salud por su compromiso y entrega.

Fuente: DIARIO Extra. Opinión. Disponible en <https://cutt.ly/ME7X8SS>

## Vacuna de Pfizer es eficaz contra formas graves de COVID-19 al menos seis meses

**4 oct.** Dos dosis de la vacuna de Pfizer/BioNTech son eficaces para evitar el riesgo de hospitalización por COVID-19 y todas sus variantes por al menos seis meses, según un estudio publicado por la revista *The Lancet*.

El estudio de Pfizer y la red de salud estadounidense Kaiser Permanente analizó los datos médicos de 3,4 millones de personas en el sur del estado de California entre el 4 de diciembre y el 8 de agosto pasados.

Determinó que la eficacia de la vacuna contra los riesgos de infección disminuye con el tiempo, pasando de 88% en el mes siguiente a la segunda dosis, a 44% después de seis meses.

Por otro lado, la vacuna mantiene su eficacia de 90% contra los riesgos de hospitalización por COVID-19, incluyendo la infección de la variante delta, por al menos seis meses, reveló el estudio.

Los datos confirman los resultados de estimaciones previas del Centros para el Control y la Prevención de Enfermedades de Estados Unidos (CDC), la principal agencia federal de salud pública de Estados Unidos, y el ministerio de Salud de Israel, indicó *The Lancet* en un comunicado.

"Nuestro estudio confirma que las vacunas son una herramienta central para controlar la epidemia y son extremadamente eficaces para prevenir las formas graves y las hospitalizaciones, incluso contra delta y otras variantes preocupantes", resumió Sara Tartof, principal autora del estudio."

Luis Jodar, vicepresidente y jefe médico de Pfizer, acotó que "un análisis específico de las variantes muestra claramente que la vacuna es eficaz contra todos los tipos de variantes".

Fuente: EL ECONOMISTA. Disponible en <https://cutt.ly/bE7Vfir>

## Clear Labs presenta la solución Clear Dx SARS-CoV-2 que aborda y supera las barreras tradicionales de la secuenciación de próxima generación

5 oct. Clear Labs (San Carlos, CA, EUA) presentó su nueva solución Clear Dx SARS-CoV-2, que aborda y supera las barreras tradicionales para la secuenciación de próxima generación (NGS), en el Congreso Científico Anual y Exposición de Laboratorios Clínicos 2021 de la AACC, que exploró la ciencia de vanguardia y la tecnología que dan forma al futuro de la medicina de laboratorio. Clear Dx es una plataforma NGS totalmente automatizada que ofrece una caracterización



completa del SARS-CoV-2 y sus variantes de interés. Diseñada para ofrecer resultados exactos y casi en tiempo real, Clear Dx ha revolucionado la forma en que los laboratorios clínicos y de salud pública abordan la vigilancia genómica y de patógenos. La plataforma de secuenciación totalmente automatizada ayuda a los laboratorios a trabajar de manera rápida y eficiente, ofreciendo la agilidad para abordar la pandemia de COVID-19 en rápida evolución y un tiempo más productivo para realizar otras tareas de laboratorio.

Clear Dx permite a los laboratorios generar el mismo resultado repetidamente, reduciendo los errores del flujo de trabajo, aumenta la consistencia de los resultados, aumenta la productividad general y, en última instancia, mejora la vigilancia genómica. Con el flujo de trabajo completo, Clear Dx, de la empresa, los laboratorios pueden administrar e interpretar datos, y actuar en consecuencia, sin la necesidad de especialistas en bioinformática. En la plataforma se ofrecen soluciones de conectividad e integración de datos que ayudan a agilizar la vigilancia de patógenos del SARS-CoV-2. La plataforma de secuenciación completa y totalmente automatizada de Clear Dx reduce significativamente el nivel de esfuerzo que normalmente se requiere para la vigilancia de enfermedades infecciosas.

Fuente: LabMedica. Disponible en <https://cutt.ly/BE7BYNh>

## Suecia suspende vacuna de Moderna para menores de 30 años

6 oct. Las autoridades de salud suecas suspendieron el miércoles el uso de la vacuna de Moderna contra COVID-19 para los menores de 30 años, agregando que tomaron la medida por precaución.

Las razones de la pausa son "los indicios de un mayor riesgo de efectos secundarios, como una inflamación del músculo cardíaco o del pericardio", el saco de doble pared que contiene el corazón y el nacimiento de los vasos principales, explicó la Agencia de Salud Pública de Suecia en un comunicado. "El riesgo de verse afectado es muy pequeño".

El principal epidemiólogo de Suecia, Anders Tegnell, dijo que las autoridades "siguen la situación de cerca y actuarán rápidamente para garantizar que las vacunas contra el COVID-19 sean siempre lo más seguras posible y al mismo tiempo brinden una protección eficaz" contra la enfermedad.



En julio, la Agencia Europea de Medicamentos (EMA, por sus siglas en inglés) recomendó autorizar la vacuna de Moderna contra el COVID-19 para los adolescentes de 12 a 17 años, la primera vez que se autoriza la inyección para personas menores de 18 años.

La vacuna de Moderna recibió en enero la luz verde para su uso en cualquier persona de 18 años o más en los 27 países de la Unión Europea. También se ha autorizado en países como Gran Bretaña, Canadá y Estados Unidos, pero hasta ahora su uso no se ha ampliado a los niños. Hasta la fecha, la vacuna de Pfizer/BioNTech es la única aprobada para menores de 18 años en Europa y América del Norte.

Ya se han aplicado cientos de millones de dosis de la vacuna de Moderna a adultos. En un estudio de más de 3.700 adolescentes de 12 a 17 años, la vacuna desencadenó los mismos indicios de protección inmunológica y no surgieron diagnósticos de COVID-19 en el grupo vacunado en comparación con cuatro casos entre los que recibieron inyecciones simuladas.

Los efectos secundarios más comunes en los jóvenes que recibieron la vacuna fueron dolor de brazo, dolor de cabeza y fatiga, los mismos que en los adultos.

Las autoridades reguladoras estadounidenses y europeas, sin embargo, han advertido que tanto la vacuna de Moderna como la de Pfizer parecen estar vinculadas a una reacción poco común en adolescentes y adultos jóvenes: dolor de pecho e inflamación del corazón.

Fuente: Chicago Tribune. Disponible en <https://cutt.ly/mE7Nxnu>

## **Pfizer pide a la FDA que apruebe su vacuna para niños de 5 a 11 años**

**7 oct.** La farmacéutica Pfizer solicitó permiso el jueves al gobierno de Estados Unidos para usar su vacuna contra el COVID-19 en niños entre cinco y 11 años, y en caso de que los reguladores acepten, las inyecciones se empezarían a aplicar en cuestión de semanas.

Muchos padres y pediatras han pedido a las autoridades protección contra el coronavirus para niños menores de 12 años, el tope actual para la vacuna de Pfizer y su socio alemán BioNTech.

Los menores no sólo pueden en ocasiones enfermar de gravedad, sino que el mantenerlos en las escuelas puede ser un reto con el virus aún intenso en comunidades con poca tasa de vacunación.

### **PFIZER HIZO EL PEDIDO EN CALIDAD DE EMERGENCIA**

Pfizer anunció en un tuit que había presentado su solicitud formalmente ante la Administración de Alimentos y Medicamentos de Estados Unidos (FDA por sus siglas en inglés).

Ahora la FDA tendrá que decidir si hay evidencia suficiente de que las vacunas son tan seguras y efectivas en niños pequeños como lo son en adolescentes y adultos. Un panel independiente de expertos debatirá públicamente la evidencia el 26 de octubre.

Según Pfizer, sus estudios muestran que los niños pequeños deberán recibir la tercera dosis que actualmente se aplica en el resto de la población.

Después de la segunda dosis, los menores entre cinco y 11 años desarrollaron niveles de anticuerpos contra el COVID-19 tan fuertes como los que obtuvieron adolescentes y adultos jóvenes en inyecciones de concentración normal.

Si bien los niños tienen menor riesgo de enfermarse de gravedad o fallecer por coronavirus que personas mayores, el COVID-19 puede llegar a matar a menores y los contagios en niños pequeños se han disparado al tiempo que la variante delta extracontagiosa se propaga por el país.

“Me alegra que estoy ayudando a que otros niños reciban la vacuna”, declaró Sebastian Prybol, de ocho años y residente de Raleigh, Carolina del Norte. Él participa en el estudio de Pfizer en la Universidad Duke y aún desconoce si recibió la vacuna o un placebo.

“Queremos asegurarnos que es absolutamente segura para los ellos”, dijo la madre de Sebastian, Britni Prybol, quien agregó que ella se sentirá “más que feliz” si la FDA autoriza la vacuna.

Fuente: Telemundo Nueva Inglaterra. Disponible en <https://cutt.ly/nE7N4m3>

## Moderna keeps COVID vaccine out of reach of poor nations

Oct. 9. Moderna, whose coronavirus vaccine appears to be the world's best defense against COVID-19, has been supplying its shots almost exclusively to wealthy nations, keeping poorer countries waiting and earning billions in profit.

After developing a breakthrough vaccine with the financial and scientific support of the U.S. government, Moderna has shipped a greater share of its doses to wealthy countries than any other vaccine manufacturer, according to Airfinity, a data firm that tracks vaccine shipments.



About 1 million doses of Moderna's vaccine have gone to countries that the World Bank classifies as low income. By contrast, 8.4 million Pfizer doses and about 25 million single-shot Johnson & Johnson doses have gone to those countries.

Of the handful of middle-income countries that have reached deals to buy Moderna's shots, most have not yet received any doses, and at least three have had to pay more than the United States or European Union did, according to government officials in those countries.

Thailand and Colombia are paying a premium. Botswana's doses are late. Tunisia could not get in touch with Moderna.

Unlike Pfizer, Johnson & Johnson and AstraZeneca, which have diverse rosters of drugs and other products, Moderna sells only the COVID-19 vaccine. The Massachusetts company's future hinges on the commercial success of its vaccine.

“They are behaving as if they have absolutely no responsibility beyond maximizing the return on investment,” said Dr. Tom Frieden, a former head of the Centers for Disease Control and Prevention.

Moderna executives have said that they are doing all they can to make as many doses as possible as quickly as possible but that their production capacity remains limited. All of the doses they produce this year are filling existing orders from governments such as the EU.

Even so, the Biden administration has grown increasingly frustrated with Moderna for not making its vaccine more available to poorer countries, two senior administration officials said. The administration has been

pressing Moderna executives to increase production at U.S. plants and to license the company's technology to overseas manufacturers that could make doses for foreign markets.

Moderna is now scrambling to defend itself against accusations that it is putting a priority on the rich.

On Friday, after The New York Times sent detailed questions about how few poor countries had been given access to Moderna's vaccine, the company announced it was "currently investing" to increase its output so it could deliver 1 billion doses to low-income countries in 2022. The company also said this past week that it would open a factory in Africa, without specifying when.

Moderna executives have been talking with the Biden administration about selling low-cost doses to the federal government, which would donate them to poorer countries, as Pfizer has agreed to do, the two senior officials said. The negotiations are continuing.

In an interview Friday, Moderna CEO Stéphane Bancel said that "it is sad" that his company's vaccine had not reached more people in poorer countries but that the situation was out of his control.

He said that Moderna tried and failed last year to get governments to kick in money to expand the company's scant production capacity and that the company decides how much to charge based on factors including how many doses are ordered and how wealthy a country is. (A Moderna spokesperson disputed Airfinity's calculation that the company had provided 900,000 doses to low-income countries, but she did not provide an alternate figure.)

Nearly a year after Western countries began sprinting to vaccinate their populations, the focus in recent months has shifted to the severe vaccine shortages in many parts of the world. Dozens of poorer countries, mostly in Africa and the Middle East, had vaccinated less than 10% of their populations as of Sept. 30.

In August, for example, Johnson & Johnson faced rebukes from the director-general of the World Health Organization and public health activists after the Times reported that doses of that shot produced in South Africa were being exported to wealthier countries.

Biden administration officials are especially frustrated with what they see as Moderna's lack of cooperation, because the U.S. government has provided the company with critical assistance.

Scientists at the National Institutes of Health worked with the company to develop the vaccine. The United States kicked in \$1.3 billion for clinical trials and other research. And in August 2020, the government agreed to preorder \$1.5 billion of the vaccine, guaranteeing that Moderna would have a market for what was an unproven product.

Although clinical trials last year found that the Moderna and Pfizer vaccines were similarly effective, more-recent studies suggest that Moderna's shot is superior. It offers longer-lasting protection and is easier to transport and store.

Moderna's shot is "essentially the premium vaccine," said Karen Andersen, an industry analyst at Morningstar. "They're in a position where they probably don't need to sacrifice too much on pricing in a lot of these deals."

Fuente: The Seattle Times. Disponible en <https://cutt.ly/gE6pTZK>

## La OMS confirmó que está cerca de aprobar la vacuna Sputnik V

8 oct. Tras la polémica por la falta de aprobación de la vacuna rusa, la Organización Mundial de la Salud (OMS) adelantó este viernes que está "cerca" de resolver los problemas de la fórmula Sputnik V, aunque no dió fechas para un posible aprobación de uso de emergencia.

La OMS deberá retomar pronto su revisión de la vacuna, que todavía no aprobó. La fórmula Sputnik V empezó el proceso de homologación a principios de año, pero "quedó suspendido ya que faltaban algunos trámites jurídicos", indicó el pasado jueves la directora general adjunta de la OMS para el acceso a las medicinas, Mariangela Simao, en conferencia de prensa.

Simao no precisó, sin embargo, de qué trámites se trataba, pese a declararse "contenta de que las negociaciones con el gobierno ruso sobre este problema están a punto de resolverse".

"Aún nos deben aportar algunas informaciones y también quedan pendientes las preguntas sobre la finalización de las inspecciones en los distintos centros de producción en Rusia, pero me satisface decirles que el proceso está a punto de empezar", añadió la profesional, citada por la agencia de noticias AFP.

Si bien los estudios confirman una elevada eficacia, la Unión Europea y la OMS aún no aprobaron el uso de ese inmunizante, que es utilizado en varios países de América latina. La agencia de Naciones Unidas ya incluyó en su lista de vacunas aprobadas a Moderna, Pfizer-BioNTech, Johnson&Johnson, AstraZeneca (incluyendo la que se produce en Corea del Sur y la india Covishield) y las vacunas chinas de Sinopharm y Sinovac (Coronovac).

La lista de uso de emergencia de la OMS es un requisito previo para el suministro al Covax, el mecanismo creado para achicar la brecha en el acceso de vacunas, y facilitaría la inclusión de la Sputnik V dentro de las solicitadas por los países para habilitar viajes internacionales.

Días atrás, el ministro de salud ruso, Mikhail Murashko, anunció que "las "barreras" para que la OMS apruebe de emergencia el inoculante ya habían sido "removidas" y que solo restaban "procedimientos administrativos menores" para su habilitación.

"Todas las barreras fueron removidas, solo restan procedimientos administrativos menores. Fue confirmado por el director general de la OMS Tedros Adhanom Ghebreyesus", tuiteó la cuenta oficial del inmunizante, citando al funcionario.

Fuente: Política argentina. Disponible en <https://cutt.ly/nE7N4m3>





## Is my immunity waning? Doctors advise Pfizer vaccine recipients not to worry

**Oct 10.** There's little doubt now -- study after study, in real life and in lab dishes, in the US and elsewhere -- that people's immunity starts to wane just months after they finish the two-dose series of Pfizer COVID-19 vaccine.

While getting two doses of vaccine creates a strong immune response that reduces the risk of severe disease by more than 90%, the protection against milder and asymptomatic infections drops off gradually.

That's why Pfizer has asked for and received US Food and Drug Administration authorization to add boosters for many people who are six months out from vaccination.

But should others be seeking boosters, too? How much should people be worrying?

"I think that we expect that immunity will slowly wane, over time, but it's not a reason for people to panic," said Dr. Ann Falsey, a specialist in viral respiratory diseases at the University of Rochester School of Medicine.

"It's not like suddenly one day you're completely susceptible, like you were before you were vaccinated," added Falsey, who is helping lead clinical trials of COVID-19 vaccines.

"The vaccines are all standing up pretty well -- Pfizer, Moderna and Johnson & Johnson -- for severe disease," Falsey told CNN. "Now, that's not to say that we might not eventually get to a point where we really need people to get boosters to prevent more severe illness. But, really, the majority of the breakthrough infections are colds, maybe flu-like illness -- not the scary illnesses that we were facing before," she added.

"So my main message is, don't panic. You're going to be okay."

That hasn't stopped Americans from flocking to get boosters. This past week more people were getting booster shots than were getting their first round of a coronavirus vaccine. By Friday, more than 7 million Americans had received either booster shots or the third round of vaccines authorized for people with immunocompromising conditions who likely did not get adequate responses to the first two shots.

This week, two more studies added to the growing evidence that immunity from Pfizer's vaccine drops off.

One study from Israel covered 4,800 health care workers and showed antibody levels wane rapidly after two doses of vaccine, "especially among men, among persons 65 years of age or older, and among persons with immunosuppression."

A second study from Qatar showed protection from the Pfizer vaccine peaked in the first month after vaccination and then began to wane.

"These findings suggest that a large proportion of the vaccinated population could lose its protection against infection in the coming months, perhaps increasing the potential for new epidemic waves," the team wrote in a report published in the *New England Journal of Medicine*.

How can protection wane against mild or asymptomatic infection while staying strong against severe disease?

It's because the human immune system is complex.

Antibodies form the first line of defense, stopping a virus from getting into some cells in the body. This is the protection that starts to wear off after time.

But there's a second line of defense -- cell-based immunity. Cells called B cells and T cells can take longer to generate than antibodies, but they provide a longer-lived, broader defense against infection and are responsible for decreases in severe infections.

So while people may be susceptible to mild illness after they've been vaccinated, they're much less likely to get really sick, end up in the hospital or die.

"But there's a lot of reasons people don't want to get sick. They don't want to pass it to loved ones. People don't want to pass it to young children that can't get vaccinated yet," Falsey said.

The US Centers for Disease Control and Prevention has been saying for months that's why even fully vaccinated people need to continue taking precautions against infection -- wearing masks when around a lot of other people who may or may not be vaccinated, especially indoors, and making sure rooms are well ventilated.

The FDA is considering applications later this month from both Moderna and Johnson & Johnson to authorize booster doses of their vaccines. Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, has said he thinks a third dose of vaccine will become part of the standard regimen for COVID-19.

Fuente: CNN Health. Disponible en <https://cutt.ly/JE6amuR>

## Demuestran un método que podría prevenir futuros brotes de coronavirus

**11 oct.** Investigadores japoneses han desarrollado una estrategia de vacunación en ratones que promueve la producción de anticuerpos capaces de neutralizar no sólo el SARS-CoV-2, sino también una amplia gama de otros coronavirus.

Según publican en el 'Journal of Experimental Medicine', si se traslada con éxito a los humanos, el método podría conducir al desarrollo de una vacuna de nueva generación capaz de prevenir futuras pandemias de coronavirus.

El virus SARS-CoV-2 responsable de COVID-19 entra en las células humanas utilizando su proteína de

espiga para unirse a un receptor de la superficie celular llamado ACE2. El dominio de unión al receptor de la proteína espiga consta de dos partes: una región "central" que es muy similar en todos los coronavirus, y una región "cabeza" más especializada que media la unión a ACE2.

Los anticuerpos que reconocen la región de la cabeza del dominio de unión al receptor de la espiga pueden bloquear la entrada del SARS-CoV-2 en las células, pero ofrecen poca protección contra otros coronavirus, como el virus SARS-CoV-1 responsable del brote de síndrome respiratorio agudo severo de 2002.

En cambio, los anticuerpos que reconocen la región central del dominio de unión al receptor de la espiga pueden impedir la entrada de varios coronavirus en las células humanas. Sin embargo, desgraciadamente, los individuos expuestos a la proteína viral de la espiga tienden a producir muchos anticuerpos contra la



región de la cabeza, pero pocos, o ninguno, que reconozcan la región del núcleo.

Demuestran un método que podría prevenir futuros brotes de coronavirus

"Esto sugiere que, aunque es posible la generación de anticuerpos ampliamente neutralizantes, es poco probable que la infección por el SARS-CoV-2 y las vacunas actuales proporcionen protección contra la aparición de nuevos virus relacionados con el SARS", explica el profesor Tomohiro Kurosaki, del Centro de Investigación de la Frontera Inmunológica del WPI en la Universidad de Osaka (Japón).

"Dado que anteriores epidemias de coronavirus como el SARS-CoV-1 y el MERS-CoV se han producido debido a coronavirus zoonóticos que cruzan la barrera de las especies, la posibilidad de que surjan virus similares en el futuro supone una amenaza importante para la salud pública mundial, incluso ante la existencia de vacunas eficaces para los virus actuales", añade.

Kurosaki y sus colegas decidieron probar una nueva estrategia de vacunación que podría permitir al sistema inmunitario producir anticuerpos neutralizantes más amplios. Los investigadores modificaron genéticamente el dominio de unión al receptor de la proteína de la espiga del SARS-CoV-2, cubriendo su región de la cabeza con moléculas de azúcar adicionales. Estas moléculas de azúcar podrían proteger la región de la cabeza del sistema inmunitario y potenciar la producción de anticuerpos contra la región central no protegida del dominio de unión al receptor.

De hecho, los ratones inmunizados con estas proteínas modificadas produjeron una proporción mucho mayor de anticuerpos que reconocían la región central del dominio de unión al receptor de la proteína de la espiga. Estos anticuerpos fueron capaces de neutralizar la entrada celular no sólo del SARS-CoV-2 sino también del SARS-CoV-1 y de tres coronavirus similares al SARS procedentes de murciélagos y pangolines.

Habrà que trabajar mucho para trasladar esta estrategia a los seres humanos, pero, según Kurosaki, "estos datos sugieren que las versiones modificadas del dominio de unión al receptor de picos podrían ser un componente útil para el desarrollo de vacunas de próxima generación ampliamente protectoras para prevenir futuras pandemias de coronavirus".

Fuente: infosalus. Disponible en <https://cutt.ly/DE6JmWW>

## Hallazgo "fascinante y bastante aterrador" relacionado con el coronavirus

**11 oct.** Un grupo de investigadores del Instituto Pasteur de Madrid junto a otros científicos del Instituto Pasteur de Laos han analizado una serie de murciélagos que habitan grutas calcáreas con un resultado "fascinante y bastante aterrador" relacionado con el coronavirus, según David Robertson, virólogo de la Universidad de Glasgow. La investigación ha mostrado la presencia de tres virus similares al coronavirus en los murciélagos, según un artículo publicado en Nature.

Los resultados acercan la hipótesis de que la COVID-19 tuvo un origen natural y no fue creado, como muchas veces se ha barajado. Así, los investigadores analizaron saliva, heces y orina de 645 murciélagos en cuevas de Laos y encontraron tres virus: BANAL-52, BANAL-103 y BANAL-236.

Estos virus, similares al SARS-CoV-2, tienen la capacidad de infectar células humanas, ya que tienen regiones que se unen al receptor, que se adhieren a las células humanas para invadirlas. Según Alice Latinne, bióloga evolutiva en la Wildlife Conservation Society en Hanói (Vietnam), el sudeste asiático es "un punto caliente de diversidad para los virus relacionados con el SARS-CoV-2".

“Estoy más convencida que nunca de que el SARS-CoV-2 tiene un origen natural”

“Cuando se secuenció por primera vez el SARS-CoV-2, el dominio de unión al receptor no se parecía a nada que habíamos visto antes”, señala Edward Holmes, virólogo de la Universidad de Sydney en Australia. Al comienzo de la pandemia, esto hizo pensar que el coronavirus no tuvo un origen natural. Ahora, con el nuevo hallazgo, las teorías que apuntaban a que la COVID-19 fue creada pierden peso.

“Estoy más convencida que nunca de que el SARS-CoV-2 tiene un origen natural”, coincide Linfa Wang, viróloga de la Facultad de Medicina de Duke-NUS en Singapur. El parecido de los virus encontrados impulsa el origen natural de la COVID-19: BANAL-52 es un 96,8% similar al coronavirus, según Nature.

Estos no son los únicos virus parecidos al SARS-CoV-2 que se han hallado. La revista científica explica cómo el año pasado se encontró el RatG13, otro virus pariente a la COVID-19 en murciélagos de Yunnan: este era un 96,1% idéntico, lo que apuntaba a que ambos virus compartieron un ancestro hace 40-70 años.

Fuente: as. Actualidad. Disponible en <https://cutt.ly/OE6Z8ys>

## Confirman resultados de ensayo clínico fase III desarrollado por el Instituto Pasteur de Irán: 91,7% de eficacia de Soberana 02 y Soberana Plus frente a la cepa Delta

**11 oct.** Como parte de una colaboración entre el Instituto Pasteur de Irán y el Instituto Finlay de Vacunas sobre las vacunas de la serie Soberana, un comité independiente desarrolló el ensayo clínico fase III en la población iraní de 18 a 80 años.

El ensayo a doble ciego, aleatorizado y controlado con placebo, incluyó 24.000 sujetos a los que se le aplicó la vacuna Soberana 02 en un régimen de dos dosis en ocho ciudades y una dosis de refuerzo (régimen de tres dosis) con la vacuna Soberana Plus en otras dos ciudades. Durante el ensayo, la variante Delta, julio (71,9%) y agosto (95,4%), fue ampliamente predominante.

El análisis intermedio mostró que la eficacia de la vacuna para prevenir la hospitalización confirmada por COVID-19 en el régimen de dos dosis fue del 76,8% (IC del 95%: 50,6 a 89,1) y en el régimen de tres dosis fue del 91,7% (IC del 95%: 20,7 a 99,1). En el 87,9% de los participantes en el grupo de régimen de dos dosis y en el 98,8% de los participantes en el régimen de tres dosis, se observó un aumento de 4 veces en el título sérico o un cambio de negativo a positivo en el título sérico.



Fuente: Cubadebate. Disponible en <https://cutt.ly/WE6CLlg>





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## Patentes registradas en Patentscope

Estrategia de búsqueda: *Vaccine in the title or abstract AND 20211001:20211011 as the publication date 52 records.*

1. [WO/2021/196808](#) NOVEL THERAPEUTIC VACCINE AGAINST NOVEL CORONAVIRUS, PREPARATION METHOD THEREFOR, AND USE THEREOF  
WO - 07.10.2021

Clasificación Internacional [A61K 39/29](#) N° de solicitud PCT/CN2020/142585 Solicitante HANGZHOU XINGAO BIOTECHNOLOGY CO., LTD Inventor/a TAN, Yingxuan

Disclosed is a novel therapeutic vaccine against novel coronavirus, comprising: (1) a virus-like particle vaccine composed of a recombinant novel coronavirus antigen S protein-conjugated liposome and an immunostimulant, wherein the immunostimulant is encapsulated in the recombinant novel coronavirus antigen S protein-conjugated liposome; or (2) a virus-like particle vaccine composed of novel coronavirus antigen S protein, a genetically recombinant adenoviral vector, and an immunostimulant encapsulated by a transmembrane peptide-conjugated liposome, wherein the immunostimulant encapsulated by a transmembrane peptide-conjugated liposome is prepared by encapsulating the immunostimulant in the transmembrane peptide-conjugated liposome. Further disclosed are a preparation method for the novel therapeutic vaccine and a use of the novel therapeutic vaccine in the preparation of a drug against coronavirus. The vaccine against novel coronavirus can significantly induce humoral immunity and protective cellular immunity, trigger mucosal immunity, regulate the stable state of body immunity, enhance immune and anti-viral functions in the body, and significantly induce an immune function specific to novel coronavirus, thereby effectively inhibiting coronavirus pneumonia.

2. [WO/2021/197346](#) VACCINE ADJUVANT CONTAINING TRPV2 AGONIST AND USE THEREOF  
WO - 07.10.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud PCT/CN2021/084112 Solicitante TSINGHUA UNIVERSITY Inventor/a LIU, Wanli

Provided are a vaccine adjuvant containing a TRPV2 agonist and a use thereof. The vaccine adjuvant comprises: a TRPV2 agonist. The vaccine adjuvant containing a TRPV2 agonist provided by the present invention can effectively activate B lymphocytes and enhance an antibody immune response, and is especially suitable for the prevention and treatment of diseases caused by pathogenic bacteria that carry capsular polysaccharides (pneumococcus being a representative), *Vibrio cholerae* enterotoxin, or new coronavirus. The vaccine adjuvant has good application prospects.

3. [1/2021/551008](#) PURIFICATION METHOD FOR VACCINE VIRUS USING AFFINITY CHROMATOGRAPHY

PH - 04.10.2021

Clasificación Internacional [B01D 15/38](#) N° de solicitud 1/2021/551008 Solicitante HK INNO.N CORPORATION Inventor/a YU, Jaelim

The present disclosure relates to separation and purification methods for a vaccine virus using affinity chromatography, and more particularly, to a purification method for a virus capable of obtaining a vaccine virus with a high purity and a high yield using affinity chromatography containing a vaccine virus-affinity resin.

4. [WO/2021/198258](#) TREATMENT INVOLVING NON-IMMUNOGENIC RNA FOR ANTIGEN VACCINATION

WO - 07.10.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud PCT/EP2021/058297 Solicitante BIONTECH SE Inventor/a SAHIN, Ugur

The present disclosure relates to methods and agents for antigen vaccination and inducing effective antigen-specific immune effector cell responses such as T cell responses. Specifically, the present disclosure relates to methods comprising administering to a subject (i) non-immunogenic RNA encoding a peptide or protein comprising an epitope for inducing an immune response against an antigen in the subject, i.e., non-immunogenic RNA encoding vaccine antigen; and (ii) an immune stimulant or RNA encoding an immunostimulant. Administering to the subject non-immunogenic RNA encoding vaccine antigen may provide (following expression of the RNA by appropriate target cells) vaccine antigen for stimulation, priming and/or expansion of immune effector cells and, thus, may induce an immune response against vaccine antigen (and disease-associated antigen) in the subject.

5. [20210310709](#) ICE-LINED VACCINE REFRIGERATOR

US - 07.10.2021

Clasificación Internacional [F25B 49/02](#) N° de solicitud 17260593 Solicitante B MEDICAL SYSTEMS S.A.R.L. Inventor/a Gilles RIES

An ice-lined vaccine refrigerator includes a vaccine storage compartment, an electrically powered cooling circuit, the electrically powered cooling circuit being configured to generate an ice-lining and to cool the vaccine storage compartment; an AC power inlet adapted for connection to an external supply of AC power; and a refrigerant compressor forming part of the electrically powered cooling circuit and adapted to be powered by the external supply of AC power through the AC power inlet. Reliability is improved by using a DC powered compressor and an AC/DC convertor to convert AC power received at the AC power inlet to DC power to power the compressor.

6. [20210308278](#) INTRANASAL VACCINE THAT INDUCES CELLULAR IMMUNITY

US - 07.10.2021

Clasificación Internacional [A61K 47/69](#) N° de solicitud 17265267 Solicitante The University of Tokyo Inventor/a Yoshikazu YUKI

The present invention provides a nanogel nasal vaccine that induces cell-mediated immunity. Specifically, the present invention relates to a vaccine preparation comprising a complex of a nanogel, a vaccine antigen, and an adjuvant, wherein the vaccine preparation can efficiently induce the cell-mediated immunity, and can also induce a systemic and mucosal immune response.

7. [WO/2021/197589](#) TREATMENT INVOLVING NON-IMMUNOGENIC RNA FOR ANTIGEN VACCINATION

WO - 07.10.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud PCT/EP2020/059170 Solicitante BIONTECH SE  
Inventor/a SAHIN, Ugur

The present disclosure relates to methods and agents for antigen vaccination and inducing effective antigen-specific immune effector cell responses such as T cell responses. Specifically, the present disclosure relates to methods comprising administering to a subject (i) non-immunogenic RNA encoding a peptide or protein comprising an epitope for inducing an immune response against an antigen in the subject, i.e., non-immunogenic RNA encoding vaccine antigen; and (ii) an immune stimulant or RNA encoding an immunostimulant. Administering to the subject non-immunogenic RNA encoding vaccine antigen may provide (following expression of the RNA by appropriate target cells) vaccine antigen for stimulation, priming and/or expansion of immune effector cells and, thus, may induce an immune response against vaccine antigen (and disease-associated antigen) in the subject.

8. [WO/2021/198779](#) METHODS AND SYSTEMS FOR VACCINE PRODUCTION

WO - 07.10.2021

Clasificación Internacional [C12M 3/00](#) N° de solicitud PCT/IB2021/000208 Solicitante ADVA  
BIOTECHNOLOGY LTD. Inventor/a KARNIELI, Ohad

A decentralized distributed vaccine manufacturing systems and methods thereof provide a cost effective, simple to operate, automated, and small-scale development and manufacturing process by automated computer-controlled devices. The devices and methods disclosed that allows localized vaccine development and manufacture. The bioreactor systems can include at least one bioreactor chamber, at least one reservoir, a plurality of sensors, and a fluid circuit. The operational methods disclosed herein are directed towards growing cells or tissue while measuring various parameters, and a controlled operation of the various parameters during the operation of the bioreactor systems.

9. [WO/2021/198376](#) NOVEL SALMONELLA-BASED CORONAVIRUS VACCINE

WO - 07.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud PCT/EP2021/058513 Solicitante VAXIMM AG  
Inventor/a LUBENAU, Heinz

The present invention relates to a DNA vaccine comprising a Salmonella typhi Ty21a strain comprising a DNA molecule comprising a eukaryotic expression cassette encoding at least a COVID-19 coronavirus (SARS-CoV-2) spike (S) protein or a portion thereof. In particular, the present invention relates to the DNA vaccine for use in the prevention and/ or the treatment of coronavirus disease 2019 (COVID-19) or a SARS-CoV-2 infection.

10. [20210308255](#) ZIKA VIRUS VACCINE

US - 07.10.2021

Clasificación Internacional [A61K 39/205](#) N° de solicitud 17220040 Solicitante Sumagen Canada Inc.  
Inventor/a Chil-Yong KANG

A recombinant vesicular stomatitis virus (rVSV) having a Zika virus (ZIKV) envelope (E) gene, a prime boost immunization combination against ZIKV including: (a) a prime vaccine or immunogenic composition comprising a recombinant vesicular stomatitis virus (rVSV) carrying a ZIKV envelope (E) protein, and (b) a boost vaccine or immunogenic composition comprising a rVSV carrying the same ZIKV E protein. The ZIKV gene can be genetically modified to encode a modified ZIKV E protein that elevates glycoprotein synthesis and trigger efficient humoral immune response.

11. [20210308258](#) MICROCAPSULE-BASED VACCINE

US - 07.10.2021

Clasificación Internacional [A61K 39/29](#) N° de solicitud 17269912 Solicitante INSTITUTE OF PROCESS  
ENGINEERING, CHINESE ACADEMY OF SCIENCES Inventor/a Guanghui MA



A vaccine comprising antigen and a matrix of biodegradable polymer blend, wherein the polymer blend comprises hydrophobic polymer and amphiphilic block copolymer, and the vaccine exists in form of microcapsules that comprise a multi-cavity structure inside, and has an average particle diameter of preferably 10-100 µm and more preferably 30-60 µm, and is prepared by means of the following method: making porous microspheres from the polymer blend, then mixing the porous microspheres with antigen-containing solution, and then sealing openings of porous microspheres that have been loaded with the antigen-containing solution to form an opening-sealed microcapsule loaded with the antigen.

12. [WO/2021/198413](#) STABILIZED VACCINE COMPOSITIONS

WO - 07.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud PCT/EP2021/058601 Solicitante JANSSEN VACCINES & PREVENTION B.V. Inventor/a RITSCHHEL, Tina

The present invention relates to vaccine composition comprising an immunologically effective amount of a viral fusion protein antigen, such as an RSV pre-fusion F protein, and a stabilizing amount of an antiviral compound, and to methods for preparing such vaccine compositions.

13. [20210308260](#) Non-integrative *Listeria*-based vaccine and method for inducing antitumor immune response

US - 07.10.2021

Clasificación Internacional [A61K 39/385](#) N° de solicitud 17050666 Solicitante Suzhou RoyalTech Med CO., Ltd Inventor/a Nan DAI

Disclosed are a non-integrative *Listeria*-based vaccine and a method for inducing antitumor immune response. In particular, the present disclosure provides a recombinant nucleic acid molecule, a recombinant plasmid or a recombinant expression vector comprising the recombinant nucleic acid molecule, a recombinant protein, and a recombinant *Listeria*. Also disclosed are a pharmaceutical composition and a vaccine comprising the above component, a method for slowly and continuously killing cells using the same, and a method for inducing immune response in a subject using the same.

14. [WO/2021/201612](#) NOVEL VACCINE COMPOSITION FOR PREVENTION AND TREATMENT OF CORONAVIRUS

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/KR2021/004025 Solicitante SL VAXIGEN, INC. Inventor/a SEO, Yong Bok

The present invention relates to a novel vaccine composition for preventing and treating CoV. More specifically, the present invention provides a vaccine composition for preventing and treating CoV comprising, as an active ingredient, an S1 glycoprotein of CoV or an immunogenic fragment thereof, or a polynucleotide encoding the S1 glycoprotein or an immunogenic fragment thereof.

15. [20210308244](#) IMMUNOGENIC COMPOSITIONS, ANTIGEN SCREENING METHODS, AND METHODS OF GENERATING IMMUNE RESPONSES

US - 07.10.2021

Clasificación Internacional [A61K 39/015](#) N° de solicitud 17165867 Solicitante UNIVERSITY OF WASHINGTON Inventor/a Sean C. MURPHY

An immunogenic composition is provided herein. The immunogenic compositions are used to identify and select immunogenic antigens that elicit immune responses in a subject and may be subsequently used in multi-antigen vaccine compositions against one or more diseases or conditions. According to some embodiments, the immunogenic composition may include a plurality of nucleic acid fragments or minigenes derived from a nucleic acid library, wherein each nucleic acid fragment encodes a different antigen or functional portion thereof, and wherein the different antigens or functional portions thereof are associated with one or more disease or condition. The immunogenic composition may also include a

delivery medium loaded with the plurality of nucleic acid fragments and in some embodiments, the delivery medium is loaded with nucleic acid fragments in such a way that individual antigen presenting cells receive only a subset of the nucleic acids within a vaccine in order to minimize antigenic competition.

16. [WO/2021/202361](#) ENGINEERED BACTERIA FOR USE IN VACCINE COMPOSITIONS

WO - 07.10.2021

Clasificación Internacional [A61K 31/7088](#) N° de solicitud PCT/US2021/024629 Solicitante NORTH CAROLINA STATE UNIVERSITY Inventor/a BARRANGOU, Rodolphe

The present disclosure provides materials and methods related to engineered bacteria for use in vaccines. In particular, the present disclosure provides novel compositions and methods for generating vaccine compositions comprising bacteria (e.g., Lactobacillus) engineered to express immunogenic polypeptides and immunogenicity-enhancing adjuvant polypeptides to treat and/or prevent infection from a pathogenic organism (e.g., coronavirus).

17. [3889165](#) IMPFSTOFFZUSAMMENSETZUNG ZUR VORBEUGUNG VON TOLLWUT UND HERSTELLUNGSVERFAHREN DAFÜR

EP - 06.10.2021

Clasificación Internacional [C07K 14/005](#) N° de solicitud 19890724 Solicitante BIOAPPLICATIONS INC Inventor/a LEE YONG JIK

The present invention relates to: a rabies virus glycoprotein comprising an amino acid sequence represented by SEQ ID NO: 2; a recombinant vector for producing the glycoprotein; a transformant comprising the vector; and a vaccine composition comprising the rabies glycoprotein, and the like.

18. [WO/2021/195694](#) ATTENUATED POXVIRUS VECTOR BASED VACCINE FOR PROTECTION AGAINST COVID-19

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/AU2021/050274 Solicitante SEMENTIS LIMITED Inventor/a PROW, Natalie

The present invention relates to a composition for raising an immune response in an animal which prevents or decreases the risk of a coronavirus infection and decreases severity of disease. In particular, the invention relates to vaccines and/or immunogenic compositions for raising an immune response in an animal which prevents or decreases the risk of the SARS-CoV-2 disease named COVID-19 by the World Health Organization. The composition comprises an attenuated poxvirus, and especially a vaccinia virus, wherein the attenuated poxvirus genome comprises a coronavirus SARS-CoV-2 nucleic acid sequence encoding the spike protein polypeptide and or the membrane protein polypeptide and or nucleocapsid protein polypeptide and or envelope protein polypeptide or an immunogenic or functional part of any of these.

19. [3888677](#) VOM STAMM DIS-ABGELEITETES REKOMBINANTES VACCINIA-VIRUS MIT NEUARTIGEM, VON INFLUENZAVIRUS ABGELEITETEM HÄMAGGLUTININ-PROTEIN-GEN

EP - 06.10.2021

Clasificación Internacional [A61K 39/275](#) N° de solicitud 19884182 Solicitante TOKYO METROPOLITAN INST MEDICAL SCIENCE Inventor/a YASUI FUMIHIKO

Provided are: a recombinant vaccinia virus which is effective for the prevention of the development of a disease by the infection by H7 avian influenza virus and has high safety; and a vaccine against H7 avian influenza virus, which comprises the recombinant vaccinia virus. The recombinant vaccinia virus according to the present invention is a recombinant vaccinia virus having such a structure that an expression promoter and the full length or a part of cDNA encoding hemagglutinin protein of H7 avian influenza virus are contained in the genome for vaccinia virus strain DIs.

20. [20210308254](#) HUMAN ROTAVIRUS STRAINS AND VACCINES

US - 07.10.2021

Clasificación Internacional [A61K 39/15](#) N° de solicitud 17349639 Solicitante THE UNITED STATES OF AMERICA, as represented by the Secretary, Department of Health and Human Services Inventor/a Baoming Jiang

A vaccine composition and method of vaccination are provided useful for immunizing a subject against a rotavirus. The vaccines include rotavirus strains CDC-9 and CDC-66, fragments thereof, homologues thereof, or combinations thereof. Inventive vaccines may include a fragment of CDC-9, CDC-66, homologues thereof, or combinations thereof. Methods of inducing an immunological response are provided by administering an inventive vaccine.

21. [WO/2021/200800](#) VACCINE FOR PREVENTING OR TREATING CORONAVIRUS INFECTION OR SYMPTOMS ASSOCIATED WITH CORONAVIRUS INFECTION

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/JP2021/013237 Solicitante OSAKA UNIVERSITY Inventor/a NAKAGAMI, Hironori

The present invention provides a vaccine to be used for preventing or treating coronavirus infection and symptoms associated with coronavirus infection.

22. [20210308253](#) NEW VACCINES AGAINST AVIAN REOVIRUSES

US - 07.10.2021

Clasificación Internacional [A61K 39/15](#) N° de solicitud 17259798 Solicitante Biomune Company Inventor/a Kristi Mae Dorsey

The present invention relates to vaccine and composition comprising at least one antigenic material derived from an avian reovirus and an adjuvant comprising a lipophile and a polymer of acrylic or methacrylic acid and uses thereof for vaccinating avian against reoviruses.

23. [3886898](#) REKOMBINANTE HIV-ENV-POLYPEPTIDE UND IHRE VERWENDUNG

EP - 06.10.2021

Clasificación Internacional [A61K 39/21](#) N° de solicitud 19888314 Solicitante INT AIDS VACCINE INITIATIVE Inventor/a STEICHEN JON M

24. [WO/2021/202893](#) DETECTING ADAPTIVE IMMUNITY TO CORONAVIRUS

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/US2021/025409 Solicitante NONIGENEX, INC. Inventor/a LAPOINTE, Jerome P.

Provided are devices, systems, methods and kits for determining whether a subject is immune to an infection by a disease-causing pathogen by measuring neutralizing antibodies against the disease-causing pathogen in a biological sample from the subject. The devices, systems, methods, and kits described herein are useful for confirming whether a vaccine against the disease-causing pathogen has elicited enough neutralizing antibodies to prevent a later infection, or lessen severity of disease caused by, the disease-causing pathogen. Such devices, systems, methods, and kits are also useful for detecting an infection in the subject.

25. [3193917](#) Vaccinesammensætninger, der omfatter tryptophan-2,3-dioxygenase eller fragmenter deraf DK - 04.10.2021

Clasificación Internacional [A61K 39/00](#) N° de solicitud 15774851 Solicitante IO BIOTECH ApS Inventor/a ANDERSEN, Mads Hald

The invention relates to prophylaxis and therapy of cancer. In particular there is provided a protein Tryptophan2,3-dioxygenase (TDO) or peptide fragments here of that are capable of eliciting anti-cancer immune responses. Specifically, the invention relates to the use of TDO or peptides derived thereof or TDO specific T-cells for treatment of cancer. The invention thus relates to an anti-cancer vaccine which

optionally may be used in combination with other immunotherapies and to TDO specific T-cells adoptively transferred or induced *in vivo* by vaccination as a treatment of cancer. It is an aspect of the invention that the medicaments herein provided may be used in combination with cancer chemotherapy treatment. A further aspect relates to the prophylaxis and therapy of infections by the same means as described above.

26. [20210309733](#) METHODS FOR TREATING CORONAVIRUS INFECTION AND RESULTING INFLAMMATION-INDUCED LUNG INJURY

US - 07.10.2021

Clasificación Internacional [C07K 16/24](#) N° de solicitud 17216660 Solicitante HUMANIGEN, INC.

Inventor/a Cameron DURRANT

The present invention provides methods for treating a subject infected with 2019 coronavirus (SARS-CoV-2) comprising administering to the subject a therapeutically effective amount of a GM-CSF antagonist or a therapeutically effective amount of a GM-CSF antagonist and a second drug, including an anti-viral agent, an anti-SARS-CoV-2 vaccine, and serum containing human polyclonal antibodies to SARS-CoV-2.

27. [20210308257](#) IMMUNOGENIC COMPOSITION AGAINST SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-CoV-2)

US - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud 17351363 Solicitante Medigen Vaccine Biologics Corporation Inventor/a Tsun-Yung KUO

The present invention relates to an immunogenic composition against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), especially to an immunogenic composition having a recombinant SARS-CoV-2 S protein and adjuvant.

28. [WO/2021/202333](#) ENHANCEMENT OF THE PRODUCTION OF ADENOVIRUS-BASED GENETRANSFER VECTORS

WO - 07.10.2021

Clasificación Internacional [C12N 15/86](#) N° de solicitud PCT/US2021/024578 Solicitante GREFFEX, INC.

Inventor/a STAERZ, Uwe, D.

In one aspect, the embodiments disclosed herein relate to the production of fully-deleted adenovirus-based gene delivery vectors packaged without the use of an adenoviral helper virus, and more particularly in their use in the transfer of genes and the expression of proteins, vaccine development, and cell engineering. In another aspect, the production of adenoviral vectors deleted of all adenoviral genes is described that carry genes of interest with detrimental or toxic activities to eukaryotic cells.

29. [3886897](#) CORONAVIRUSIMPFSTOFF

EP - 06.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud 21704439 Solicitante CUREVAC AG Inventor/a RAUCH SUSANNE

30. [3327030](#) VACCINER OG VACCINEBESTANDDELE TIL HÆMNING AF MIKROBIELLE CELLER

DK - 04.10.2021

Clasificación Internacional [A61K 35/13](#) N° de solicitud 17206527 Solicitante Pastoral Greenhouse Gas Research LTD Inventor/a ALTERMANN, Eric Heinz

The invention encompasses components from microbial cells which are useful for antibody production, including peptides, polypeptides comprising these peptides, polynucleotides which encode these peptides or polypeptides, and antibodies directed to these peptides, polypeptides, or polynucleotides. The invention also encompasses to expression vectors and host cells for producing these peptides, polypeptides, polynucleotides, and antibodies. The invention further encompasses methods and compositions, especially vaccine compositions, for detecting, targeting, and inhibiting microbial cells,



especially methanogen cells, using one or more of the disclosed peptides, polypeptides, polynucleotides, antibodies, expression vectors, and host cells.

31. [WO/2021/202861](#) METHOD OF CHARACTERISATION

WO - 07.10.2021

Clasificación Internacional [A61K 39/02](#) N° de solicitud PCT/US2021/025352 Solicitante INVIVOSCRIBE, INC. Inventor/a MILLER, Jeffrey, Edward

Aspects described herein concern methods of identifying candidate immunoglobulin paratopes directed to a pathogen of interest. Some embodiments concern the screening for candidate immunoglobulin paratopes directed to a pathogen derived epitope by screening for immunoglobulin paratopes which have both undergone class switching and are expressed across a genetically diverse infected population.

Approaches described herein facilitate the detection and analysis of immunologically dominant paratopes, together with the epitopes to which they are directed. The paratopes identified by the screening methods can be used to identify paratope sequences for recombinant antibody production, identifying and isolating candidate epitopes and immunogens for vaccine development, developing point of care diagnostics, developing immunogen expression systems, identifying and/or developing neutralising antibodies, assessing the immune status of individuals who have been previously infected with said pathogen and assessing the immune status of individuals vaccinated with an antigen based vaccines.

32. [WO/2021/197381](#) CPG ODN HAVING IMMUNOREGULATORY FUNCTION AND USE THEREOF

WO - 07.10.2021

Clasificación Internacional [C12N 15/117](#) N° de solicitud PCT/CN2021/084467 Solicitante NANJING HUAPU (PARR) BIO PHARMACEUTICALS CO., LTD. Inventor/a WANG, Ligong

Provided are an immunomodulatory CpG ODN chemically modified by means of a structure as shown by general formula I and the use thereof. The CpG ODN has an immunostimulatory activity, can stimulate the proliferation of B cells, and produce a specific cytokine. The above-mentioned CpG ODN can be used as a vaccine adjuvant alone or in combination with other adjuvants to exert a synergistic effect, and can also be used in the preparation of drugs for preventing or treating tumors, infections, and allergies.

33. [20210311073](#) METHODS, SYSTEMS, AND DEVICES FOR MEASURING IMMUNITY TO SARS-COV-2

US - 07.10.2021

Clasificación Internacional [G01N 33/68](#) N° de solicitud 15931843 Solicitante NONIGENEX, INC. Inventor/a Jerome P. LAPOINTE

Provided are devices, systems and methods for determining whether a patient is immune to an infection or a disease caused by a coronavirus, such as severe acute respiratory coronavirus 2 (SARS-CoV-2). Devices and systems described herein are cost effective, scalable, and may be used at the point of need or point of care without a specialized training. The systems and devices described herein are useful for vaccine development, screening convalescent plasma therapies, and for identifying individuals who are eligible for reintegration following a period of quarantine.

34. [20210310027](#) METHODS AND COMPOSITIONS FOR PRODUCING A VIRUS

US - 07.10.2021

Clasificación Internacional [C12N 15/86](#) N° de solicitud 17269450 Solicitante OXFORD UNIVERSITY INNOVATION LIMITED Inventor/a Sarah GILBERT

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.

35. [WO/2021/198705](#) CORONAVIRUS VACCINE

WO - 07.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud PCT/GB2021/050829 Solicitante PEPTC VACCINES LIMITED Inventor/a CSISZOVSKI, Zsolt

The disclosure relates to polypeptides, vaccines and pharmaceutical compositions that find use in the prevention or treatment of Coronaviridae or SARS-CoV-2 infection. The disclosure also relates to methods of treating or preventing Coronaviridae or SARS-CoV-2 infection in a subject. The polypeptides and vaccines comprise B cell epitopes and cytotoxic and helper T cell epitopes that are immunogenic in a high percentage of subjects in the human population.

36. [WO/2021/198769](#) VACCINE COMPOSITIONS FOR THE TREATMENT OF CORONAVIRUS

WO - 07.10.2021

Clasificación Internacional [A61K 39/385](#) N° de solicitud PCT/IB2021/000190 Solicitante VARIATION BIOTECHNOLOGIES INC. Inventor/a ANDERSON, David, Evander

The present disclosure provides compositions and methods useful for preventing and/or treating coronavirus infection. As described herein, the compositions and methods are based on development of immunogenic compositions that include virus-like particles (VLPs) which comprise one or more Moloney Murine leukemia virus (MMLV) core proteins and include one or more coronavirus epitopes, such as, for example, from SARS-Cov-2 spike protein.

37. [WO/2021/203044](#) HIGH-THROUGHPUT ASSAY FOR CIRCULATING ANTIBODIES AGAINST SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2

WO - 07.10.2021

Clasificación Internacional [C12Q 1/70](#) N° de solicitud PCT/US2021/025640 Solicitante ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI Inventor/a ZOLLA-PAZNER, Susan

The present application relates to a high-throughput assay for circulating antibodies against Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), including beads comprising a recombinant SARS-CoV-2 protein or epitope thereof; a kit comprising a population of beads, where each bead comprises a recombinant SARS-CoV-2 protein or epitope thereof and a detection reagent; a method for detecting the presence of antibodies in a subject that bind to a protein of SARS-CoV-2; and a method for assessing the efficacy of a vaccine which alters anti-SARS-CoV-2 protein antibody levels in a subject.

38. [WO/2021/203018](#) BIODEGRADABLE NANOCOMPLEX VACCINES, METHODS FOR PREVENTION OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-COV-2) INFECTION

WO - 07.10.2021

Clasificación Internacional [C12N 15/88](#) N° de solicitud PCT/US2021/025608 Solicitante ASCENDO BIOTECHNOLOGY, INC. Inventor/a JANG, Haishan

A nanocomplex vaccine for generation of immunity against SARS-CoV-2 (2019-nCoV) infection includes a protein or peptide derived from SARS-CoV-2 encapsulated in a nanocomplex, wherein the protein or

peptide derived from the SARS-CoV-2 is a full-length receptor binding domain of the spike protein (residue 319-541 of spike protein; SEQ ID NO:1).

39. [WO/2021/199056](#) VACCINE FOR NOVEL CORONA VIRUS

WO - 07.10.2021

Clasificación Internacional [A61K 39/00](#) N° de solicitud PCT/IN2020/050680 Solicitante SINHA, Kanishk Inventor/a SINHA, Kanishk

According to one aspect of the invention a composition is provided which may be used for treating Novel Coronavirus patients. The composition comprises (a) cytokine-expressing, proliferation incompetent, whole Novel Coronavirus cells; (b) an anti-PD-1 antibody that specifically binds to human Programmed Death 1 (PD-1); and (c) a TLR (toll like receptor) agonist; wherein the whole Novel Coronavirus cells are formulated with the TLR agonist.

40. [WO/2021/202971](#) COVID-19 VACCINE BASED ON THE MYXOMA VIRUS PLATFORM

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/US2021/025535 Solicitante ARIZONA BOARD OF REGENTS ON BEHALF OF ARIZONA STATE UNIVERSITY Inventor/a MCFADDEN, Grant The present invention provides myxoma viral vectors that encode severe acute respiratory syndrome coronavirus 2 antigens and that can facilitate expression and secretion of virus-like particles (VLPs). Also provided are methods of making said VLPs in mammalian cells and using said VLPs and myxoma viral vectors to induce an immune response in a subject.

41. [20210308259](#) HYDROXYAPATITE POWDER AND PROCESS FOR PRODUCING SAME, COMPOSITION BASED ON THIS POWDER AND PROCESS FOR PREPARING SAME AND KIT COMPRISING THIS POWDER

US - 07.10.2021

Clasificación Internacional [A61K 39/385](#) N° de solicitud 14891476 Solicitante URODELIA Inventor/a Nicole Rouquet

The present invention relates to a hydroxyapatite and/or tricalcium phosphate powder characterized in that it has undergone at least one sintering step at a temperature between 400° C. and 600° C. The invention also relates to a process for preparing such a powder, and to a composition comprising such a powder for use as an anti-tumour auto-vaccine and particularly in the treatment of the following pathological conditions: osteosarcoma, B or T lymphoma, mammary tumour, melanoma, haemangiosarcoma, mastocytoma, fibrosarcoma, brain tumours and schwannoma in a subject. The present invention also covers a drug combination comprising the composition of the invention and at least one second therapeutic agent, preferably an anti-tumour agent and/or a radiotherapeutic agent.

42. [20210309715](#) UTERINE CANCER TREATMENTS

US - 07.10.2021

Clasificación Internacional [C07K 14/74](#) N° de solicitud 17345553 Solicitante Immatics Biotechnologies GmbH Inventor/a Andrea MAHR

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

43. [1/2021/550346](#) B\*44 RESTRICTED PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST CANCERS AND RELATED METHODS

PH - 04.10.2021

Clasificación Internacional [C07K 14/47](#) N° de solicitud 1/2021/550346 Solicitante IMMATICS BIOTECHNOLOGIES GMBH Inventor/a SONG, Colette

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.

44. [WO/2021/202734](#) UNIVERSAL INFLUENZA VACCINE USING NUCLEOSIDE-MODIFIED MRNA  
WO - 07.10.2021

Clasificación Internacional [A61K 39/145](#) N° de solicitud PCT/US2021/025174 Solicitante THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA Inventor/a NACHBAGAUER, Raffael

The present invention relates to compositions and methods for inducing an immune response against influenza virus in a subject. In some embodiments, the present invention provides a composition comprising a nucleoside-modified nucleic acid molecule encoding at least one influenza virus antigen, such as a hemagglutinin antigen or a fragment thereof, neuraminidase antigen or a fragment thereof, nucleoprotein antigen or a fragment thereof, matrix protein 1 antigen or a fragment thereof, or matrix-2 ion channel antigen or a fragment thereof.

45. [1/2021/550617](#) CYCLIC DINUCLEOTIDE ANALOGUE, PHARMACEUTICAL COMPOSITION THEREOF, AND APPLICATION

PH - 04.10.2021

Clasificación Internacional [A61K 31/7068](#) N° de solicitud 1/2021/550617 Solicitante SHANGHAI DE NOVO PHARMATECH CO., LTD. Inventor/a TONG, Zhaolong

A cyclic dinucleotide analogue, a pharmaceutical composition thereof, and application. A cyclic dinucleotide analogue (I), an isomer thereof, a prodrug, a stable isotope derivative, or a pharmaceutically acceptable salt has the following structure. The cyclic dinucleotide analogue can be used as a regulator of a stimulator of interferon genes (STING) and a related signal path thereof, and can effectively treat and/or relieve multiple types of diseases, including but not limited to malignant tumors, inflammations, autoimmune diseases, and infectious diseases. In addition, the STING regulator can also be used as a vaccine adjuvant.

46. [WO/2021/202772](#) MULTILAMELLAR RNA NANOPARTICLE VACCINE AGAINST SARS-COV-2  
WO - 07.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud PCT/US2021/025222 Solicitante UNIVERSITY OF FLORIDA RESEARCH FOUNDATION, INCORPORATED Inventor/a SAYOUR, Elias

The present disclosure provides a nanoparticle comprising a positively-charged surface and an interior comprising (i) a core and (ii) at least two nucleic acid layers, wherein each nucleic acid layer is positioned between a cationic lipid bilayer, wherein the nanoparticle comprises RNA molecules encoding a SARS-CoV-2 protein. Methods of making such nanoparticles are further provided herein. Additionally, related cells, populations of cells, pharmaceutical compositions comprising the presently disclosed nanoparticles are provided. Methods of increasing an immune response against a tumor in a subject, methods of delivering RNA molecules to an intra-tumoral microenvironment, lymph node, and/or a reticuloendothelial organ in a subject, and methods of treating a subject with a disease are furthermore provided.

47. [20210311036](#) METHODS, SYSTEMS, AND DEVICES FOR MEASURING IMMUNITY TO SARS-COV-2

US - 07.10.2021

Clasificación Internacional [G01N 33/543](#) N° de solicitud 16870874 Solicitante NoniGen, LLC Inventor/a Jerome P. Lapointe

Provided are devices, systems and methods for determining whether a patient is immune to an infection or a disease caused by a coronavirus, such as severe acute respiratory coronavirus 2 (SARS-CoV-2). Devices and systems described herein are cost effective, scalable, and may be used at the point of need or point of care without a specialized training. The systems and devices described herein are useful for vaccine development, screening convalescent plasma therapies, and for identifying individuals who are eligible for reintegration following a period of quarantine.

48. [20210308125](#) PRIMING OF CANCER CELLS WITH LOW DOSE NALTREXONE

US - 07.10.2021

Clasificación Internacional [A61K 31/485](#) N° de solicitud 17351792 Solicitante CANCER VACCINE INSTITUTE Inventor/a Angus Dalgleish

The disclosure provides methods of treating a tumor/cancer by administering naltrexone or an analogue thereof, followed by a recovery phase, and then administering a small molecule signaling inhibitor such as PI3-kinase inhibitors, AKT inhibitors, taxanes, antimetabolites, alkylating agents and/or cell cycle inhibitors. The disclosure also provides diagnostic methods for assessing a therapeutic response to the methods of treatment.

49. [WO/2021/203017](#) BIODEGRADABLE NANOCOMPLEX VACCINES, METHODS FOR PREVENTION OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-COV-2) INFECTION

WO - 07.10.2021

Clasificación Internacional [A61K 39/215](#) N° de solicitud PCT/US2021/025607 Solicitante ASCENDO BIOTECHNOLOGY, INC. Inventor/a JANG, Haishan

A nanocomplex vaccine for generation of immunity against SARS-CoV-2 (2019-nCoV) infection includes a protein or peptide derived from SARS-CoV-2 encapsulated in a nanocomplex. The protein or peptide derive from the S protein is selected from the group consisting of a full-length spike protein (residue 1-1273, SEQ ID NO:1), a full-length spike 1 (S1) protein (residue 14-685, SEQ ID NO:2), a full-length spike 2 protein (residue 686-1273, SEQ ID NO:3), a full-length spike 2' protein (residue 816-1273, SEQ ID NO:4), a full-length receptor-binding motif SEQ ID NO:5, a full-length fusion peptide (residue 816-855, SEQ ID NO:6), a full-length fusion peptide 1 (residue 816-837, SEQ ID NO:7), and a full-length fusion peptide 2 (residue 838-855, SEQ ID NO:8), a fusion peptide (residues 670-698, SEQ ID NO:9), a fusion peptide (residues 806-834, SEQ ID NO:10).

50. [3889253](#) ZUSAMMENSETZUNG AUS DENDRITISCHEN ZELLEN

EP - 06.10.2021

Clasificación Internacional [C12N 5/0784](#) N° de solicitud 21155881 Solicitante MEDIGENE IMMUNOTHERAPIES GMBH Inventor/a MILOSEVIC SLAVOLJUB

The present invention contemplates dendritic cell compositions. The dendritic cell compositions employ MHC class-II targeting signals fused to an antigen or fragment thereof to obtain MHC II presentation of the antigen or fragment thereof. In particular, the invention refers to a dendritic cell vaccine comprising dendritic cells expressing a MHC class-II targeting signal fused to an antigen or fragment thereof. Dendritic cell vaccines for the stimulation of an immune response against melanoma-associated antigen are also described.

51. [3886896](#) ORALER DISPERGIERBARER IMPFSTOFF MIT VIROSOMEN

EP - 06.10.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud 19813465 Solicitante CATALENT U K SWINDON ZYDIS LTD Inventor/a WONG YIK TENG

52. [WO/2021/202690](#) VIRUS TREATMENT METHODS, AND RELATED PHARMACEUTICAL COMPOSITIONS, VACCINE COMPOSITIONS, SANITIZING COMPOSITIONS, AND DRUG DISCOVERY METHODS

WO - 07.10.2021

Clasificación Internacional [C04B 103/67](#) N° de solicitud PCT/US2021/025122 Solicitante CASHMAN, Daniel Patrick Inventor/a CASHMAN, Daniel Patrick

Pharmaceutical compositions comprising at least one calcium chelating agent such as disodium ethylenediamine tetraacetate (Na<sub>2</sub>EDTA) as an active pharmaceutical ingredient, are described that are useful for treating an infection by single stranded RNA virus, such as SARS-COV-2, are described.

Development of the compositions was assisted by using a novel drug discovery method which utilizes the characterization of a common molecular mechanism in a cohort of an unforeseen clinical co-morbidly patterns identified as outliers. Reverse engineering of the outlier cohort yielded unrecognized calcium requirements for infection by SARS-CoV-2 provided a common molecular mechanism in the outlier group that enabled formulation of the new pharmaceutical compositions.

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

*Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20211001->20211011), 9 records.*

PAT. NO.	Title
1 <a href="#">11,137,385</a>	<a href="#">Obtaining information from a biological sample in a flow cell</a>
2 <a href="#">11,136,354</a>	<a href="#">Protective anti-ZIKV vaccine without inducing cross-reactions with dengue</a>
3 <a href="#">11,136,352</a>	<a href="#">Immunotherapy against several tumors including neuronal and brain tumors</a>
4 <a href="#">11,135,285</a>	<a href="#">Swine vaccine</a>
5 <a href="#">11,135,284</a>	<a href="#">MERS-CoV vaccine</a>
6 <a href="#">11,135,283</a>	<a href="#">Retroviral vector for the administration and expression of replicon RNA expressing heterologous nucleic acids</a>
7 <a href="#">11,135,282</a>	<a href="#">Humanized influenza monoclonal antibodies and methods of use thereof</a>
8 <a href="#">11,135,281</a>	<a href="#">West Nile virus vaccine and method of use thereof</a>
9 <a href="#">11,135,246</a>	<a href="#">Peptides and combination of peptides for use in immunotherapy against leukemias and other cancers</a>



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