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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.

IFV INSTITUTO FINLAY DE VACUNAS · SiViFinlay · VaCyT

Desarrollo de las vacunas cubanas contra la COVID-19 "SOBERANAS"

Cómo surgen las SOBERANAS

A raíz de la detección de los primeros casos de COVID-19 en Cuba en marzo de 2020, los científicos cubanos comenzaron a estudiar todo lo relacionado al SARS-CoV-2, virus que causaba dicha enfermedad. El 19 de mayo de ese año, el presidente cubano Miguel Díaz-Canel Bermúdez le solicita a un grupo de representantes del polo científico cubano que, al margen de los progresos de otras naciones en la búsqueda de una vacuna, era importante conseguir la nuestra, porque le daría soberanía al país en el enfrentamiento a la pandemia en medio del hostil asedio imperial a todo lo que signifique desarrollo y progreso propios. Uno de los centros allí presentes fue el Instituto Finlay de Vacunas (IFV).

A partir de ese momento comenzó en esa institución, a idearse el proyecto que le daría vida a las "SOBERANAS", poniendo su experiencia en el desarrollo de vacunas preventivas y empeño en combatir esa terrible pandemia que aún azota a la humanidad. Ese hecho colocó a Cuba en el grupo de países que han desarrollado vacunas contra el virus que causa la COVID-19.

Primeramente se definió como antígeno el RBD (*Receptor Binding Domain*, por sus siglas en inglés), el Dominio de Unión al Receptor, debido a que "ese fragmento de proteína es justo la región del virus que interactúa con un receptor de la célula del ser humano, para penetrar la célula, por lo que la estrategia de la vacuna es dirigir anticuerpos contra esa estructura del virus, con el objetivo de bloquear esa interacción de la proteína viral con su receptor en el hospedero", según afirmó la doctora Dagmar García Rivera.

Según explicó la doctora en Ciencias Belinda Sánchez Ramírez, directora de Inmunología e Inmunoterapia del Centro de Inmunología Molecular (CIM), esta proteína es compleja y resultaba muy factible obtenerla en la tecnología de células de mamíferos.

La proteína se basó en la combinación de este antígeno del virus RBD con la plataforma de vesícula de membrana externa del meningococo B, que es la base de la vacuna cubana contra la meningitis meningocócica VA-MENGOC-BC®. Según García Rivera, esto le ofrecía mucha seguridad a este candidato vacunal, porque se basa en la plataforma de una vacuna que tiene más de 30 años de uso.

Al decir del Director Adjunto del IFV Yuri Valdés Balbín, las cuatro fases de la etapa 1 del proyecto farmacéutico fueron el desarrollo y obtención del RBD, la evaluación preclínica de los modelos de animales, la obtención y liberación de los lotes de los ensayos clínicos y el autorizo para comenzar los ensayos clínicos. Y así nació un candidato vacunal cubano de tipo de subunidad proteica denominado FINLAY-FR-1.

Con relación a la evaluación preclínica, se logró una respuesta inmune inducida por la vacunación en modelos experimentales en animales de laboratorio y se consiguió producir anticuerpos específicos contra la proteína RBD en ratones y conejos. El candidato vacunal cubano demostró la capacidad de los anticuerpos de inhibir la interacción del RBD con el receptor ACE2 (el receptor que facilita la entrada del coronavirus en las células), así como la capacidad neutralizante de los anticuerpos frente al SARS-CoV-2, virus causante de la COVID-19.

A finales del mes de julio, las pruebas en humanos las iniciaron, en su propia piel, los doctores Vicente Vérez, Director General del IFV y Yuri Valdés y Dagmar García, también directivos de la institución, quienes son, a la vez, investigadores principales en un proyecto que, como es tradición en la ciencia cubana, integra también esfuerzos y aportes del Centro de Inmunología Molecular (CIM) y la Universidad de La Habana.

A pesar de que el ensayo clínico fase 1 fue registrado con el nombre de SOBERANA 01, por ser el primero de ese candidato vacunal, finalmente se le adjudicó ese nombre al candidato vacunal propiamente y "quien realmente le puso el nombre de SOBERANA fue el pueblo, por el orgullo que nos hizo sentir, y será el nombre comercial de la vacuna para su utilización en el país" según refirió el Director General del IFV.

Al hablar de SOBERANA, el líder del proyecto marcó los bajos riesgos, pocas incertidumbres y alentadores resultados de la fase preclínica en ratones y conejos. Y en el caso de ellos, los pioneros de la fase clínica, certificó que habían experimentado "una alta respuesta inmune", que se confirmaría en los próximos días, después de aplicada la segunda dosis.

SOBERANA 01 fue el candidato vacunal número 30 que recibió autorización de ensayo clínico en el mundo, registrado por la Organización Mundial de la Salud (OMS).

Luego de la aprobación por parte del Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED), el 24 de agosto de 2020, comenzó la fase I de ensayo clínico aleatorizado, doble ciego, del candidato vacunal FINLAY-FR-1 (SOBERANA 01), con el objetivo de evaluar su seguridad. El sitio clínico seleccionado fue el Centro Nacional de Toxicología (Cenatox), donde se administró el producto a 60 voluntarios comprendidos en el rango etario de 19-59 años, que fueron asignados al azar en tres grupos (20 sujetos cada uno):

1) FINLAY-FR-1 (50 µg de d-RBD más vesículas de la membrana externa de *N. meningitidis*);
2) FINLAY-FR-1A-50 µg d-RBD (tres dosis);
3) FINLAY-FR-1A-25 µg d-RDB (tres dosis).

El grupo FINLAY-FR-1 se dividió aleatoriamente para recibir una tercera dosis del mismo candidato a vacuna (programa homólogo) o de FINLAY-FR-1A-50 (programa heterólogo). Los resultados primarios fueron la seguridad y la reactogenicidad. El resultado secundario fue la inmunogenicidad de la vacuna. La respuesta humoral al inicio del estudio y después de cada vacunación se evaluó mediante la prueba de neutralización de virus vivos, ELISA anti-RBD IgG y la prueba de neutralización *in vitro* de la interacción RBD:hACE2.

El ensayo clínico se realizó cumpliendo todos los protocolos de buenas prácticas para este tipo de estudios siendo inspeccionado rigurosamente por el CECMED.

En el artículo "*A randomized, double-blind phase I clinical trial of two recombinant dimeric RBD COVID-19 vaccine candidates: safety, reactogenicity and immunogenicity*", fueron publicados los resultados de este estudio en MedRxiv.

El ensayo clínico fase II de Soberana 01 se realizó en la provincia de Cienfuegos, Cuba, por lo que se le denominó SOBERANA Centro donde participaron 1166 sujetos (583 por cada grupo) de entre 19-80 años de edad.

El estudio fue aleatorizado, a doble ciego, en grupos paralelos, de no inferioridad, adaptativo y multicéntrico para evaluar la inmunogenicidad del candidato vacunal profiláctico anti SARS-CoV-2 FINLAY-FR-1 (SOBERANA 01) respecto a FINLAY-FR-2 (SOBERANA 02), ambos en un esquema heterólogo con FINLAY-FR-1A (SOBERANA Plus). Es decir, se aplicó a un grupo el esquema SOBERANA 01 + SOBERANA Plus y al grupo control se le aplicó el esquema SOBERANA 02 + SOBERANA Plus.

SOBERANA 02

A la par de SOBERANA 01 también se desarrollaba otro candidato vacunal denominado FINLAY-FR-2 (SOBERANA 02) de subunidades proteicas compuesto por la proteína RBD del SARS-CoV-2 (secuencia 319-541) producida por biotecnología en células CHO, conjugada covalentemente al Toxoide Tetánico y absorbida en gel de hidróxido de aluminio. Cada unidad de Toxoide Tetánico contiene entre 4 y 8 unidades de la proteína del SARS-CoV-2. La plataforma en la que se basa es muy conocida y predice una elevada seguridad, muy pocos efectos adversos y una potencial eficacia. En ella radica una de sus fortalezas, utilizándose un método de conjugación, usado por más de 15 años en Quimi-Hib® (Vacuna conjugada contra el *Haemophilus Influenzae* tipo b) en la población pediátrica. El Toxoide Tetánico ha sido usado también como proteína portadora en otras vacunas conjugadas desarrolladas por el IFV como Quimi-Vio® (candidato vacunal conjugado contra el *Streptococcus Pneumoneae*).

En el artículo "*Molecular Aspects Concerning the Use of the SARS-CoV-2 Receptor Binding Domain as a Target for Preventive Vaccines*" se argumentan los aspectos relacionados con el uso del RBD del SARS-CoV-2 como diana para vacunas preventivas contra la COVID-19.

Antes de iniciar la fase de evaluación clínica de la vacuna, este fue extensamente evaluado en modelos de animales demostrando su no toxicidad y la capacidad de generar una elevada respuesta celular y de anticuerpos, incluyendo anticuerpos neutralizantes. Además, se observó la inducción de memoria inmunológica tanto de células B como T. Sus resultados fueron publicados en el artículo "*SARS-CoV-2 RBD-Tetanus Toxoid Conjugate Vaccine Induces a Strong Neutralizing Immunity in Preclinical Studies*" en ACS Central Science.

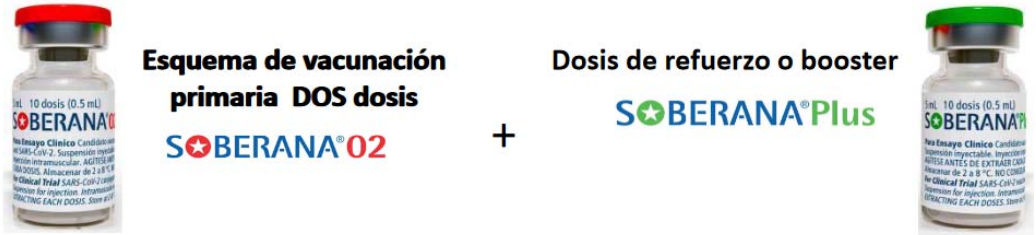
El estudio clínico fase I iniciado en octubre de 2020 y concluido en febrero de 2021, incluyó 40 sujetos aparentemente sanos en un rango de edad entre 19 y 59 años. En este ensayo se evaluaron dos formulaciones (alta y baja) de SOBERANA 02. Ambas resultaron seguras y bien toleradas, sin la presencia de eventos adversos graves y severos relacionados con la vacunación. Los resultados de inmunogenicidad obtenidos con la dosis más alta avalaron su selección como formulación a continuar con las siguientes fases de evaluación clínica. El estudio fase IIa/b iniciado en diciembre de 2020, incluyó un total de 910 sujetos aparentemente sanos en un rango de edad entre 19 y 80 años. Los análisis de seguridad realizados luego de cada dosis administrada mostraron que el candidato resultó seguro y bien tolerado, sin la presencia de eventos adversos graves y severos relacionados con la vacunación.

Los resultados están publicados en MedRxiv:

"*Safety and immunogenicity of anti-SARS CoV-2 vaccine SOBERANA 02 in homologous or heterologous scheme*"

"*Safety and immunogenicity of anti-SARS CoV-2 conjugate vaccine SOBERANA 02 in a two-dose or three-dose heterologous scheme in adults: Phase IIb Clinical Trial*"

Estos resultados conllevaron a que el CECMED diera luz verde a la fase III del estudio clínico el cual comenzó el 8 de marzo de 2021 con la inclusión de 44,010 sujetos, en La Habana, Cuba. Los voluntarios recibieron fundamentalmente 2 esquemas de vacunación, un esquema de dos dosis con SOBERANA 02 y SOBERANA Plus. Se trató de un ensayo fase III multicéntrico, adaptativo, aleatorizado, controlado con placebo y a doble ciego en voluntarios de edades comprendidas entre los 19 y 80 años.



Los resultados finales de eficacia del ensayo clínico de fase III con el esquema heterólogo de tres dosis se publicaron en el artículo "*Efficacy and Safety of SOBERANA 02, a COVID-19 conjugate vaccine in heterologous three doses combination*" en octubre de 2021 en MedRxiv.

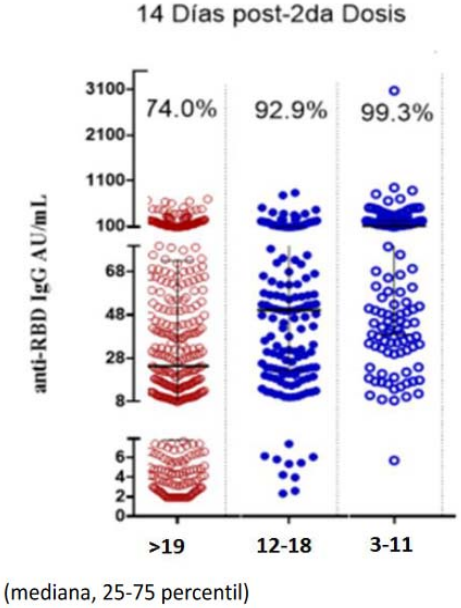
Se aprobó también por el CECMED, la ejecución de un ensayo de intervención en 150,000 sujetos voluntarios pertenecientes principalmente a trabajadores de los sectores de la salud y el biofarmacéutico que inició el 22 de marzo de 2021 en La Habana y complementaron los estudios clínicos del Fase III. La eficacia demostrada, con el esquema heterólogo de tres dosis, fue del 92,4 % contra la enfermedad sintomática, 75,7 % contra la infección y del 100% contra la enfermedad sintomática severa y la muerte. Esta eficacia se alcanzó en un escenario complejo de diferentes variantes de cepas con predominio de cepa Beta (aislada en Sudáfrica).

El 20 de agosto de 2021 fue emitido por el CECMED el Autorizo de Uso en Emergencia de SOBERANA 02 en Cuba en la población mayor de 19 años de edad, luego de un riguroso proceso de evaluación, al demostrarse que cumplía con los requisitos y parámetros exigidos en cuanto a calidad, seguridad y eficacia. El esquema de vacunación combina dos dosis de SOBERANA 02 y la tercera dosis con SOBERANA Plus.

Esta aprobación estuvo sustentada en los resultados obtenidos en los ensayos clínicos realizados Fases I, II y III, así como en el estudio de intervención en grupos y poblaciones de riesgo y la intervención sanitaria, que aportaron suficientes elementos sobre la seguridad y eficacia de estas vacunas, lo que permite el uso masivo en nuestro país y la comercialización hacia otros países.

SOBERANA PEDIATRÍA

En junio de 2021, fue aprobado por el CECMED el ensayo clínico Fase I/II con el candidato vacunal SOBERANA en población pediátrica. El Ensayo Clínico Fase I-II (denominado SOBERANA PEDIATRÍA) en población pediátrica (niños y adolescentes cubanos) se inició el 14 de junio de 2021 en 350 voluntarios en el rango de edad de 3 a 18 años. Se trató de un estudio abierto, adaptativo y multicéntrico con un esquema de tres dosis: dos dosis de SOBERANA 02 más una de SOBERANA Plus como vacuna de refuerzo. Los resultados de inmunogenicidad mostraron que luego de aplicar solamente dos dosis SOBERANA 02 se alcanzó un 92,8 y 99,3 % de seroconversión en la respuesta específica de anticuerpos IgG anti-RBD para los grupos etarios 12-18 y 3-11 años, respectivamente. Igualmente, la mediana de título neutralizante para ambos grupos resultó significativamente superior al comparar con el panel de sueros de convalecientes pediátricos. No se detectaron eventos adversos graves consistentes con la vacunación. Los siguientes gráficos muestran los resultados alcanzados en este estudio.



(mediana, 25-75 percentil)

Respuesta de anticuerpos IgG anti-RBD 14 días después de la segunda dosis de SOBERANA02 en:

Fase I/II: Adolescentes: 12-18 años n=175

Fase I/II: Niños 3-11 años n=175

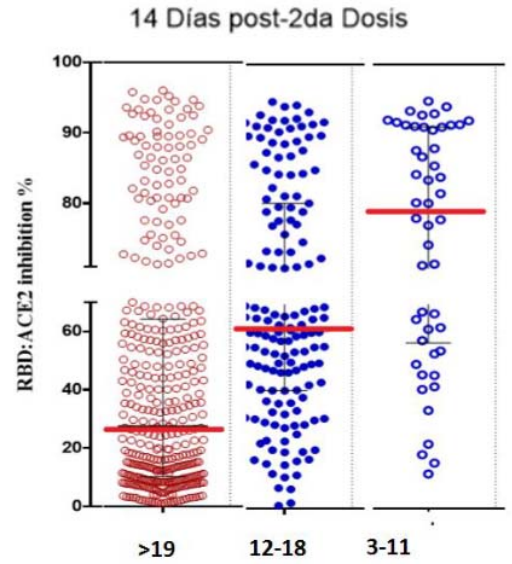
Comparado con adultos mayores de 19 años del ensayo clínico Fase II. (ROJO)

% de RESPONDEDORES

74% en adultos mayores 19 años

92.9% en adolescentes 12-18 años

99.3% en niños 3-11 años



(mediana, 25-75 percentil)

Neutralización molecular
(% Inhibición RBD-ACE2)

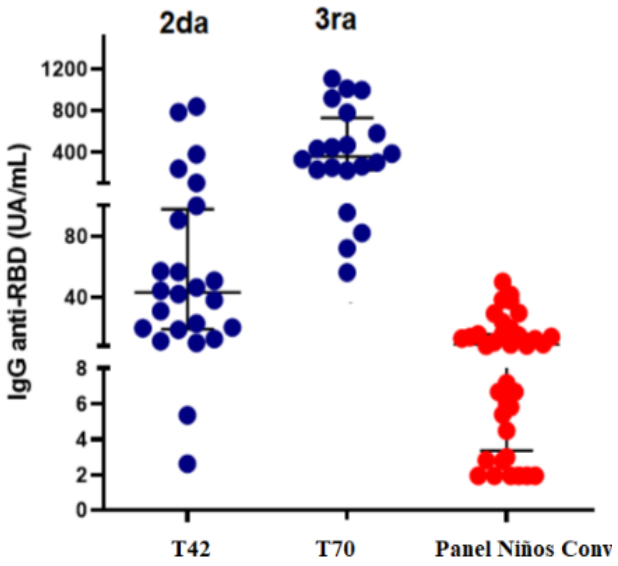
% de inhibición interacción RBD-ACE2 después de dos dosis de SOBERANA02.

Fase I/II: Adolescentes: 12-18 años n=175

Fase I: Niños 3-11 años n=50

Comparado con adultos mayores 19ª Fase II

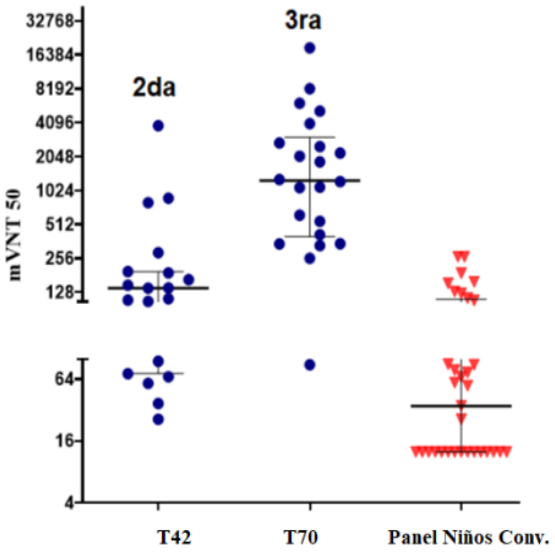
Respuesta de anticuerpos IgG anti-RBD



(mediana, 25-75 percentil)

Inmunogenicidad después de la tercera dosis con SOBERANA-Plus en adolescentes Fase I (n=25):

Neutralización molecular (mVNT)



(Media Geométrica, IC 95%)

El 3 de septiembre de 2021 el CECMED emitió la Autorización de Uso de Emergencia de SOBERANA 02 y SOBERANA Plus en su esquema heterólogo para uso en población pediátrica de 2 a 18 años, y esto permitió iniciar el 5 de septiembre la Primera Campaña de Vacunación Infantil contra la COVID-19 a nivel mundial. Hasta el mes de Octubre se habían vacunado alrededor de 2 millones de niños con la primera dosis sin ningún evento adverso grave.

A mediados del mes de diciembre de 2021, más de 1 631 000 de niños cubanos había recibido el esquema completo de vacunación contra la COVID-19.

SOBERANA 02 en Irán

El 29 de junio SOBERANA 02 recibió la Autorización de Uso en Emergencia en la República Islámica de Irán. La Autoridad Reguladora de ese país, otorgó la autorización basada en el reconocimiento de los resultados del desarrollo farmacéutico del producto, la evidencia de seguridad e inmunogenicidad demostrada en los ensayos clínicos de Fase I y II llevados a cabo en Cuba, así como por la eficacia clínica del 62% para el esquema de dos dosis informada en el análisis intermedio del Ensayo Clínico de Fase III.

La eficacia alcanzada de 92,4% contra enfermedad sintomática y el 100% contra la enfermedad grave y la muerte, se confirmó con los resultados de los Ensayos Clínicos en Irán con 91,7% contra la hospitalización en un escenario donde la variante dominante del virus fue la Delta (prevalencia del 95%). Este estudio incluyó a 24.000 sujetos en un rango de edad de 18 a 80 años.

SOBERANA 02 en Nicaragua y Venezuela

En Octubre de 2021, el esquema heterólogo también recibió la Autorización de Uso de Emergencia en Nicaragua y Venezuela (Condición de Medicamento de Servicio), tanto para adultos como para niños.

SOBERANA PLUS

La vacuna SOBERANA Plus fue concebida como una vacuna de refuerzo con capacidad de reactivar la respuesta inmune preexistente y con potencial protección de la reinfección con las nuevas cepas, tanto en pacientes convalecientes, previamente expuestos al virus SARS-CoV-2, como en personas inmunizadas con otra vacuna. Esto significa que puede servir como refuerzo o combinación de cualquier otra vacuna con una sola dosis. Es una vacuna de subunidades proteicas compuesta por la proteína RBD del SARS-CoV-2 (secuencia 319-541) producida por biotecnología en células CHO expresada en forma dimérica y absorbida en gel de hidróxido de aluminio.

La plataforma de obtención de proteínas recombinantes, en la que se basa la vacuna SOBERANA Plus es muy conocida, los inmunógenos vacunales que se obtienen por esta vía, se caracterizan por su seguridad, baja reactogenicidad e inducción de una respuesta inmune potente. Un ejemplo de vacunas que usan en Cuba esta plataforma lo constituye la vacuna preventiva contra la Hepatitis B, Heberbiovac HB®, así como la vacuna contra el cáncer de pulmón, basada en el factor de crecimiento epidérmico recombinante CIMAvax-EGF®.

La vacuna SOBERANA®Plus constituyó una de cinco formulaciones usadas inicialmente en los ensayos clínicos Fase I iniciados en agosto de 2020. A partir de los resultados preliminares que se fueron obteniendo, SOBERANA®Plus fue concebido como vacuna de refuerzo, tanto para convalecientes de la COVID-19 como para individuos vacunados con otras formulaciones (vacunas cubanas SOBERANA 02 y SOBERANA 01).

El Ensayo Clínico Fase I de SOBERANA®Plus aprobado para convalecientes en La Habana, Cuba, concluyó en marzo de 2021 con muy buenos resultados. Incluyó 30 sujetos convalecientes de la COVID-19 en un rango de edad entre 19 y 59 años, para evaluar y probar la capacidad de la vacuna de estimular la inmunidad natural con una sola dosis.

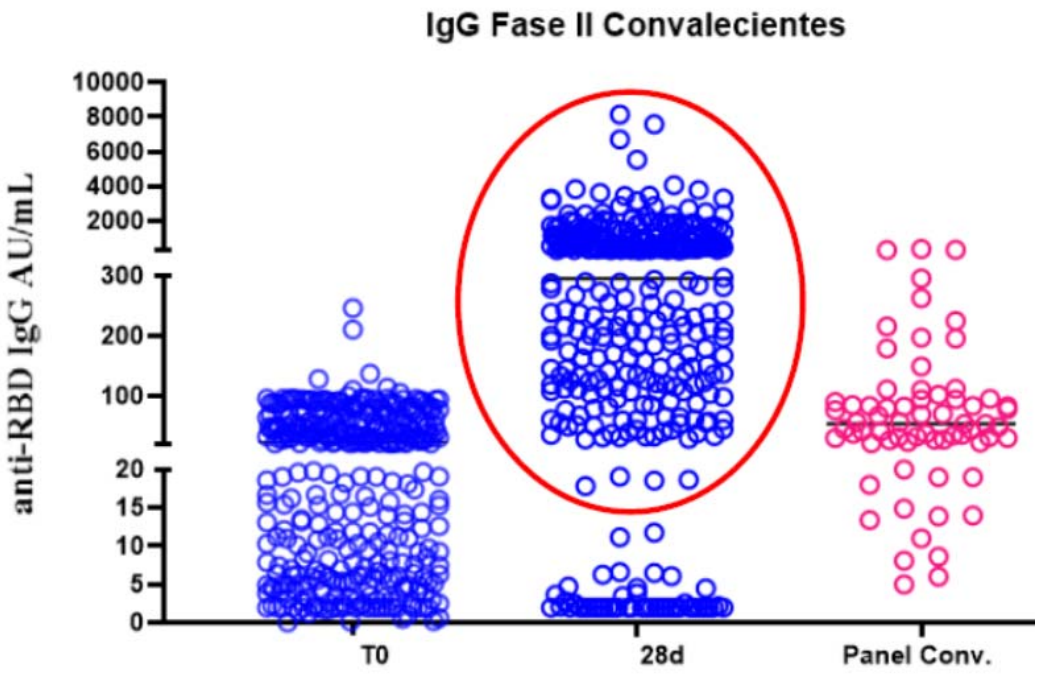
Los resultados parciales obtenidos en el Fase I mencionado fueron excelentes. Se demostró una elevada seguridad e inmunogenicidad en sujetos convalecientes y sus resultados finales fueron publicados en el artículo "*A single dose of SARS-CoV-2 FINLAY-FR-1A vaccine enhances neutralization response in COVID-19 convalescents, with a very good safety profile: An open-label phase 1 clinical trial*".

Luego se propuso el ensayo clínico Fase II de SOBERANA Plus con la inclusión de 450 convalecientes en el rango de edad entre 19 y 80 años.

La hipótesis científica de este estudio, avalada por el ensayo clínico Fase I concluido exitosamente, se fundamentó en la existencia de clones de linfocitos B de memoria en individuos previamente infectados por el SARS-CoV-2, que se estimulan selectivamente con una dosis de la vacuna FINLAY-FR-1A (SOBERANA Plus), induciendo así elevados niveles de anticuerpos neutralizantes, que pudieran protegerlos ante una reinfección, en particular contra nuevas cepas del SARS-CoV-2.

Este estudio demostró la inmunogenicidad del candidato vacunal ya que incrementó la respuesta inmune contra el RBD del SARS-CoV-2; muy superior respecto a los niveles prevacunales, al grupo control (placebo) y al panel de convalecientes cubanos.

El gráfico muestra el incremento de los niveles de anticuerpos anti RBD a los 28 días de vacunados.



Posteriormente fue aprobada por el CECMED, la ejecución del estudio de intervención en convalecientes del personal del sector de salud cubano y de BioCubaFarma. Este estudio comenzó a principios de junio de 2021 y complementó los ensayos clínicos de fase II en la población convaleciente de COVID-19.

El 20 de agosto de 2021 fue emitido por el CECMED el Autorizo de Uso en Emergencia de SOBERANA Plus en Cuba como dosis de refuerzo después de dos dosis de SOBERANA 02 en un esquema heterólogo de tres dosis luego de un riguroso proceso de evaluación, al demostrarse que cumple con los requisitos y parámetros exigidos en cuanto a calidad, seguridad y eficacia.

En septiembre de 2021, el CECMED emitió su aprobación para el inicio del ensayo clínico en población pediátrica convaleciente en el rango de edad de 2 a 18 años, el cual concluyó con muy buenos resultados.

Ya para diciembre de 2021, el CECMED emitió la Autorización de Uso de Emergencia de SOBERANA Plus en la población pediátrica convaleciente de COVID-19 de 2 a 18 años.

SOBERANA Plus Turín

En el mes de noviembre de este año se aprobó el ensayo clínico SOBERANA Plus Turín con el objetivo de evaluar su reactogenicidad e inmunogenicidad en voluntarios procedentes de Italia: que fuesen convalecientes de COVID-19, así como en sujetos sin antecedentes de esta enfermedad, pero inmunizados previamente con alguna de las vacunas contra el SARS-CoV-2 utilizadas en dicho país.

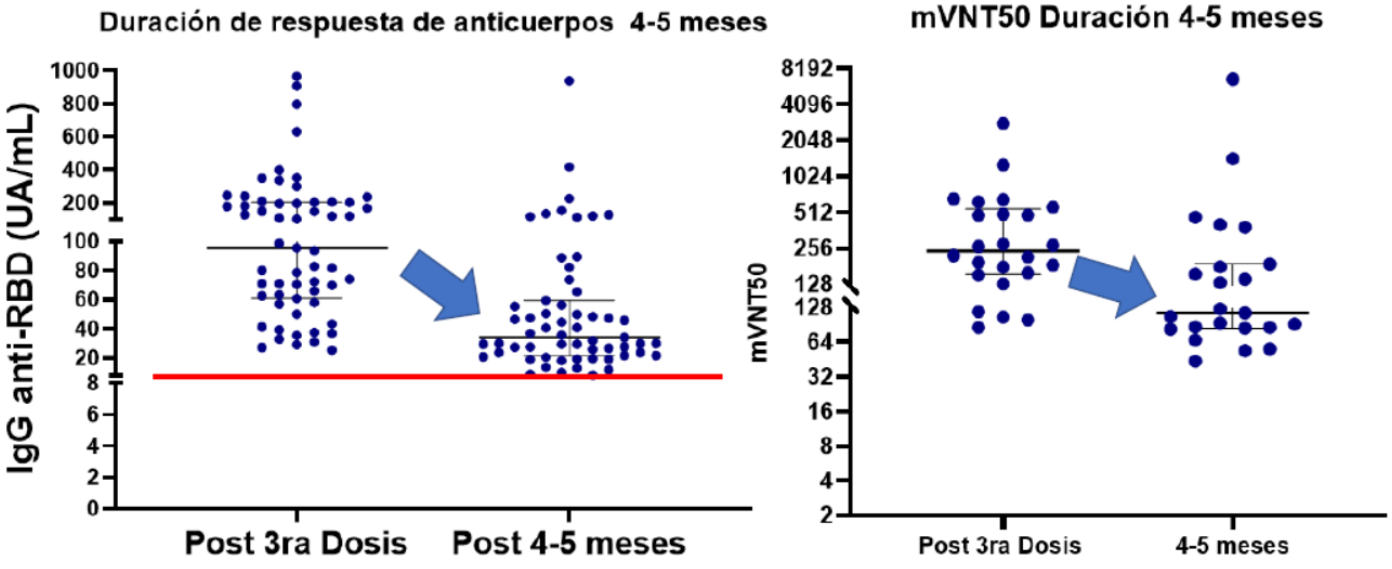
Este estudio tuvo un diseño prospectivo, abierto, no controlado, en grupos paralelos y multicéntrico. El Sitio Clínico Principal fue el Centro Internacional de Salud "La Pradera" en Cuba, y en Italia el Hospital "Amadeo di Savoia" en la ciudad de Turín.

El estudio tiene como antecedente un estudio colaborativo con el Hospital "Amadeo di Savoia", que evaluó sueros procedentes de voluntarios cubanos vacunados con SOBERANA Plus, y en el que se demostró que era capaz de inducir anticuerpos neutralizantes contra las variantes alfa, beta y delta del virus.

Se incluyeron voluntarios procedentes de Italia, de cualquier sexo, en edades comprendidas entre los 19-59 años de edad. Se les aplicó en Cuba una dosis de la vacuna SOBERANA Plus. Se vigilaron los eventos adversos durante 1 hora de observación posterior a la inmunización en el sitio clínico y seguidamente se realizó vigilancia activa y pasiva con seguimiento ambulatorio hasta los 28 días posteriores. Se tomó una muestra de suero antes de vacunar y 28 días después para evaluar la respuesta inmune inducida por la vacuna: mediante la determinación de los niveles de anticuerpos específicos anti-RBD y la inhibición *in-vitro* de la unión del RBD a su receptor ACE2 en instituciones cubanas, así como la neutralización contra diferentes variantes del virus, en Italia.

¿Cuánto dura la respuesta de anticuerpos con el esquema heterólogo de las SOBERANAS?

En un estudio realizado en sujetos del ensayo clínico Fase I y IIa con el esquema heterólogo de dos dosis de SOBERANA 02 y la dosis de refuerzo de SOBERANA Plus, se hallaron los resultados que muestran los gráficos a continuación:



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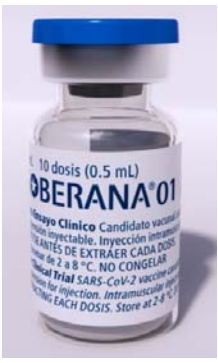
Uso de SOBERANA 01 como dosis de refuerzo



El 12 de noviembre de 2021, el CECMED autorizó un estudio clínico donde se incluirían trabajadores de la salud y de BioCubaFarma, para administrar una dosis de refuerzo con SOBERANA 01, con el objetivo de demostrar la no inferioridad de este candidato vacunal con respecto a la vacuna SOBERANA Plus, en relación a su capacidad de reactivar la respuesta inmune entre 5 y 6 meses después de la primo vacunación. También para evaluar la respuesta inmune entre 14-28 días después de la administración y la duración de la protección en el tiempo por un periodo mínimo de 6 meses.

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WO - 09.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/084806 Solicitante CANSINO BIOLOGICS INC. Inventor/a LI, Junqiang
Disclosed is a SARS-CoV-2 vaccine, for which the S protein of SARS-CoV-2 serves as the antigen, the form of the vaccine comprises an adenoviral vector vaccine, and the vaccine produces an improved protective immune response by means of transmucosal immunity, thus preventing a SARS-CoV-2 infection. Specifically, when atomized by an appropriate apparatus, the vaccine generates particles of improved uniformity, which can reach the lungs after being inhaled via the nasal cavity or the oral cavity, thus producing a protective immune response with respect to the entire respiratory tract and the lungs, enhancing the effective utilization rate of the vaccine, and increasing the effect of the vaccine.

2.20210369829METHOD FOR PREPARING LIVE ATTENUATED VACCINE BY IRRADIATION AND LIVE ATTENUATED VACCINE COMPOSITION PREPARED BY THE SAME
US - 02.12.2021
Clasificación Internacional A61K 39/02 Nº de solicitud 16955735 Solicitante KOREA ATOMIC ENERGY RESEARCH INSTITUTE Inventor/a Ho-Seong Seo
The present invention relates to a method of preparing a live attenuated vaccine by irradiation and a live attenuated vaccine composition prepared by the same, and more particularly, a method of preparing a live attenuated vaccine by irradiation including irradiating a pathogenic microorganism with a dose of 0.5 to 2 kGy of radiation per single radiation six to fifteen times; and a live attenuated vaccine composition including a pathogenic microorganism attenuated to not be revertant to a wild type by generation of at least one mutation of nucleotide insertion and nucleotide deletion by irradiation.

3.WO/2021/248145TETANUS VACCINE PLATFORM FOR EMBEDDING COVID-19 VACCINE
WO - 09.12.2021
Clasificación Internacional Nº de solicitud PCT/US2021/044054 Solicitante PRIME BIO, INC. Inventor/a SINGH, Bal, Ram

A Detoxified recombinant tetanus neurotoxin (DrTeNT) prepared by mutation of the active site amino acid residues is an effective vaccine candidate, and is to be used for embedding epitopes of SARS-CoV-2 vims protein for vaccination against Covid-19. DrTeNT is a risk-free vaccine, free of formalin or any other chemical adjuvants. The gene clone of DrTeNT has been used to insert DNA sequences corresponding to the most suitable epitopes of SAR-CoV-2 vims. The resultant combo vaccine is to have higher efficacy for DrTeNT acts as adjuvant, and higher safety as most of the population preimmunized with tetanus vaccine.

4.20210369827COMBINATION OF VACCINATION AND OX40 AGONISTS
US - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17396760 Solicitante CureVac AG Inventor/a Mariola FOTIN-MLECZEK
The present invention relates to a vaccine/agonist combination comprising an RNA vaccine comprising at least one RNA comprising at least one open reading frame (ORF) coding for at least one antigen and a composition comprising at least one OX40 agonist. The present invention furthermore relates to a pharmaceutical composition and a kit of parts comprising the components of such a vaccine/agonist combination. Additionally the present invention relates to medical use of such a vaccine/agonist combination, the pharmaceutical composition and the kit of parts comprising such a vaccine/agonist combination, particularly for the prevention or treatment of tumor or cancer diseases or infectious diseases. Furthermore, the present invention relates to the use of an RNA vaccine in therapy in combination with an OX40 agonist.

5.3919075IMPFSTOFFZUSAMMENSETZUNG ZUR VORBEUGUNG VON TUBERKULOSE MIT GLYCOSYLIERTEM AG85A-PROTEIN UND VERFAHREN ZUR HERSTELLUNG DAVON
EP - 08.12.2021
Clasificación Internacional A61K 39/04 Nº de solicitud 20748794 Solicitante BIOAPPLICATIONS INC Inventor/a LEE YONG JIK
The present invention relates to a vaccine composition for preventing tuberculosis comprising a glycosylated Ag85A protein, a vector for preparing the protein, a transformant using the vector, and a method for producing the glycosylated Ag85A protein by using the transformant. A vaccine composition comprising a glycosylated Ag85A protein of the present invention has the effect of inducing an increase in multifunctional T cells simultaneously secreting IFN-γ, TNF-α, and IL-2 which are important in regard to a protective effect against tuberculosis, and thus can be usefully used as a vaccine for preventing tuberculosis. Furthermore, the glycosylated Ag85A protein can be effectively expressed in plants and separated with high yield by means of a vector optimized for protein production, and thus can be mass produced at low cost.

6.WO/2021/239838SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-COV-2) POLYPEPTIDES AND USES THEREOF FOR VACCINE PURPOSES
WO - 02.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/064098 Solicitante INSERM (INSTITUT NATIONAL DE LA SANTÉ ET DE LA RECHERCHE MÉDICALE) Inventor/a LEVY, Yves
The Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) pandemic has undeniably emerged as the largest global health threat to humanity in this century. SARS-CoV-2 vaccines will be essential to reduce morbidity and mortality if the virus establishes itself in the population. The inventors have set up candidate vaccines against SARS-CoV-2. In particular, the inventors have identified specific epitopes to be included in vaccine candidates thanks to in silico analysis of the amino-acid sequence of these proteins to map predicted MHC-I and -II epitopes by online software (NetMHC-4.0 and NetMHCII-2.3) and peptide binding prediction software. B cell epitopes were also mapped using online software (BepiPred-2.0 and Discotope), as well as regions rich in epitopes whose sequences are homologous

between SARS-CoV-2 and -CoV-1. Finally, the inventors have generated some specific CD40 antibodies comprising one or more SARS-CoV-2 polypeptide(s) of the present invention and that are suitable for vaccine purposes. Therefore, the present invention relates to SARS-CoV-2 polypeptides and uses thereof for vaccine purposes.

7.20210369825CD40 AND CD40L COMBO IN AN ADV VACCINE VEHICLE
US - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17277997 Solicitante NantCell, Inc. Inventor/a Patrick Soon-Shiong
A cancer vaccine is provided including a recombinant nucleic acid encoding a self-activating chimeric signaling protein, and especially chimeric TNF family ligand-receptor proteins, and a tumor-associated antigen. In a preferred embodiment, the cancer vaccine may further include a nucleic acid segment encoding an IL-15 superagonist. In addition, the cancer vaccine can be co-administered with a genetically modified bacteria or yeast as an adjuvant to increase the payload expression of the cancer vaccine. Advantageously, cells expressing such combination of molecules will enhance immune reaction against tumor cells. Compositions and methods are presented that allow for an enhanced immune response against a vaccine composition, and particularly a recombinant adenoviral expression system that is used as a therapeutic agent. Most preferably, immune therapeutics are administered such that a protein or nucleotide are co-located with a therapeutic antigen, preferably via co-expression of the protein.

8.WO/2021/239147β-CORONAVIRUS ANTIGEN, β-CORONAVIRUS BIVALENT VACCINE, PREPARATION METHODS THEREFOR, AND APPLICATIONS THEREOF
WO - 02.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/097463 Solicitante INSTITUTE OF MICROBIOLOGY, CHINESE ACADEMY OF SCIENCES Inventor/a GAO, Fu
The present invention relates to a β-coronavirus antigen, a β-coronavirus bivalent vaccine, preparation methods therefor, and applications thereof. The amino acid sequence of the β-coronavirus antigen comprises, according to a sequence from an end N to an end C, an amino acid sequence arranged according to a (A-B)-(A'-B') style or an amino acid sequence arranged according to a (A-B)-C-(A'-B') style, wherein A-B represents part of the amino acid sequence or all of the amino acid sequence deriving from a receptor binding domain of a surface spike protein of a β-coronavirus; A'-B' represents part of the amino acid sequence or all of the amino acid sequence deriving from a receptor binding domain of a surface spike protein of another β-coronavirus; C represents connection of the amino acid sequences; and the β-coronavirus antigen is of a single-chain heterodimer structure. By using the β-coronavirus antigen, the β-coronavirus bivalent vaccine is obtained, and the bivalent vaccine can stimulate a mouse to produce a strong antibody response.

9.20210378951MICRONEEDLE ARRAY AND METHOD OF PRODUCING MICRONEEDLE ARRAY
US - 09.12.2021
Clasificación Internacional A61K 9/00 Nº de solicitud 17412388 Solicitante FUJIFILM Corporation Inventor/a Masaki SAKAI
An object of the present invention is to provide a microneedle array in which the stability of influenza vaccine is satisfactory and the utilization efficiency of the influenza vaccine is high, and a method of producing the same. According to the present invention, provided is a self-dissolving microneedle array including a sheet portion, and a plurality of needle portions which are present on an upper surface of the sheet portion, in which the needle portion contains a water-soluble polymer, influenza vaccine, and meglumine or a salt thereof, and the influenza vaccine is administered into a body by dissolution of the needle portions.

10.20210379170SELECTION OF CANCER MUTATIONS FOR GENERATION OF A PERSONALIZED CANCER VACCINE
US - 09.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17282080 Solicitante NOUSCOM AG Inventor/a Alfredo NICOSIA
The present invention relates to a method for selecting cancer neoantigens for use in a personalized vaccine. This invention relates as well to a method for constructing a vector or collection of vectors carrying the neoantigens for a personalized vaccine. This invention further relates to vector and collection of vectors comprising the personalized genetic vaccine and the use of said vectors in cancer treatment.

11.WO/2021/243974FUSION PROTEIN OF SARS-COV-2 AND VACCINE COMPOSITION THEREOF
WO - 09.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2020/130222 Solicitante GUANGZHOU UNIVERSITY OF CHINESE MEDICINE (GUANGZHOU INSTITUTE OF TRADITIONAL CHINESE MEDICINE) Inventor/a LIU, Zhongqiu
A fusion protein of SARS-CoV-2 and a vaccine composition thereof. The fusion protein and the vaccine composition containing the fusion protein can induce a specific immune response for SARS-CoV-2 to achieve the purposes of inhibiting replication of SARS-CoV-2, inhibiting transmission of SARS-CoV-2, or preventing common strains and variant strains of SARS-CoV-2 from colonizing in the body of a host; and the fusion protein and the vaccine composition containing the fusion protein can effectively prevent and/or treat Corona Virus Disease 2019 (COVID-19). The fusion protein can use a genetic engineering technology for mass recombinant expression, so that the elapsed time is short, and large-scale production can be facilitated.

12.3918335MITTEL ZUR HEMMUNG ODER LINDERUNG VON ENTZÜNDUNGEN IM GEHIRN
EP - 08.12.2021
Clasificación Internacional G01N 33/68 Nº de solicitud 19912541 Solicitante NIPPON ZOKI PHARMACEUTICAL CO Inventor/a LIAO WANG
An inhibiting or alleviating agent for inflammation in the brain comprising an extract from inflamed tissue inoculated with vaccinia virus as the active ingredient. A determination or evaluation method of an extract from inflamed tissue inoculated with vaccinia virus or an agent comprising the extract, characterized in that the inhibition of the expression of pro-inflammatory cytokines and/or NF-κB pathway related proteins induced by the promotion of expression of BDNF in cultivated glial cells is used as an indicator. A use of an extract from inflamed tissue inoculated with vaccinia virus in the production of the inhibiting or alleviating agent for inflammation in the brain.

13.20210369835Method of Vaccination for SARS Virus
US - 02.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud 17022475 Solicitante Shawne Forrest Inventor/a Shawne Forrest
A method of vaccination for severe acute respiratory syndrome (SARS) disease caused by at least one of SARS-CoV-1 virus and SARS-CoV-2 virus is achieved in inoculating a human with a specific vaccine composition. The vaccine composition includes a solution of salt water (H_2O and NaCl), ascorbic acid (Vitamin C) and/or a ascorbic acid salt and/or citric acid and/or a citric acid salt and a source of the at least one of SARS-CoV-1 virus and SARS-CoV-2 virus. The vaccine composition is introduced into at least one of a lymph node, a hair follicle, and an ear canal of the human for purposes of vaccination for SARS disease.

14.3914293IMPFUNG GEGEN CORONAVIRUS MIT POLIOMYELITIS-IMPFSTOFF
EP - 01.12.2021

Clasificación Internacional A61K 39/13 Nº de solicitud 21705092 Solicitante XIE QIYI Inventor/a XIE QIYI
Provided herein is a poliomyelitis vaccine for use in preventing a person from an infection by a *Coronaviridae* virus. Also provided herein is a poliomyelitis vaccine for use in inducing a protective immune response in a person against a *Coronaviridae* virus.

15.WO/2021/246740RECOMBINANT EXPRESSION VECTOR FOR PRODUCING ENCAPSULIN-BASED VACCINE, AND PREPARATION METHOD THEREFOR
WO - 09.12.2021
Clasificación Internacional C12N 15/70 Nº de solicitud PCT/KR2021/006758 Solicitante INTHERA INC. Inventor/a CHOI, Deog Young
The present invention relates to an encapsulin protein and a fusion protein comprising same, and, more specifically, to a recombinant expression vector for vaccine production, and a preparation method therefor, the vector comprising polynucleotides that encode a target protein, an encapsulin protein and an RNA interacting domain (RID) protein, so as to improve the expression efficiency of the target protein, and thus enables a water-soluble vaccine to be produced in a highly efficient manner and a large target protein to be used.

16.2846829VACCINE COMBINATIONS
DK - 06.12.2021
Clasificación Internacional A61K 39/295 Nº de solicitud 13739516 Solicitante Bharat Biotech International Limited Inventor/a ELLA, Krishna Murthy
Vaccine combinations which comprise atleast two or more of the following antigens: DTap-HEV-HepB-HPV suitable for administration in humans. A number of variations in the combination of these antigens have been disclosed that is suitable for concomitant administration. The methods of preparing the vaccine combinations are disclosed. Nucleic acids encoding the antigens, as well as methods for their production and use are provided.

17.WO/2021/242711ADJUVANTED CONJUGATE OPIOID VACCINE
WO - 02.12.2021
Clasificación Internacional A61K 9/00 Nº de solicitud PCT/US2021/033961 Solicitante UNIVERSITY OF HOUSTON SYSTEM Inventor/a HAILE, Colin, N.
The adjuvanted conjugate opioid vaccine described herein is a conjugate of a protein carrier and at least one opioid backbone component or hapten conjugated thereto, admixed with at least one adjuvant. Anti-opioid effects are demonstrated after administration of a vaccine made up of the CRM197 protein carrier linked to a FEN backbone, combined with adjuvants such as dmLT or LTA1.

18.3919072CANCER VACCINE PREPARATION
EP - 08.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 20748243 Solicitante UNIV MIE Inventor/a SHIKU HIROSHI
The present invention provides a vaccine formulation for use in the prevention and/or treatment of a cancer, comprising a complex of a hyaluronic acid derivative having an introduced hydrophobic group, and an antigen.

19.WO/2021/243219ADENOVIRUS-BASED SARS-COV-2 VACCINE
WO - 02.12.2021
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/US2021/034874 Solicitante UNIVERSITY OF PITTSBURGH - OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION Inventor/a GAMBOTTO, Andrea, A.

A recombinant coronavirus vaccine is provided. Methods of making and delivering the coronavirus vaccine also are provided along with a method of generating and anti-coronavirus immune response. A microneedle array is provided, along with methods of making and using the microneedle array.

20.WO/2021/247743AUTOLOGOUS DENDRITIC CELL VACCINE KIT AND USES
WO - 09.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/US2021/035501 Solicitante AIVITA BIOMEDICAL, INC. Inventor/a NISTOR, Gabriel
Disclosed herein is a kit to produce a personalized vaccine based on autologous dendritic cells. The kit contains all the materials, reagents and information necessary to produce a dose of live dendritic cell vaccine against a pathogen organism, part of a pathogen organism, a toxin, a venom, a structure obtained by recombinant method or chemical synthesis.

21.2977457IDNA-VACCINER OG FREMGANSMÅDER TIL ANVENDELSE AF DISSE
DK - 06.12.2021
Clasificación Internacional C12N 15/65 Nº de solicitud 15166439 Solicitante Medigen, Inc. Inventor/a PUSHKO, Peter
Described herein are iDNA vectors and vaccines and methods for using the same. The iDNA generates live attenuated vaccines in eukaryotic cells in vitro or in vivo for pathogenic RNA viruses, particularly yellow fever virus and Venezuelan equine encephalitis virus. When iDNA is injected into the vaccine recipient, RNA of live attenuated virus is generated by in vivo transcription in the recipient's tissues. This initiates production of progeny attenuated viruses in the tissues of the vaccine recipient, as well as elicitation of an effective immune response protecting against wild-type, non-attenuated virus.

22.20210369832VACCINE FOR PROTECTION AGAINST STREPTOCOCCUS SUIS
US - 02.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud 17290828 Solicitante Intervet Inc. Inventor/a Antonius Arnoldus Christiaan Jacobs
The present invention pertains to a vaccine comprising an IgM protease antigen of *Streptococcus suis*, for use in a method for protecting pigs against an infection with *Streptococcus suis* of serotype 2 and against an infection with *Streptococcus suis* of serotype 14.

23.2021266338COMPOSITIONS AND METHODS FOR PERSONALIZED NEOPLASIA VACCINES
AU - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 2021266338 Solicitante Dana-Farber Cancer Institute, Inc. Inventor/a
The invention provides a method of making a personalized neoplasia vaccine for a subject diagnosed as having a neoplasia, which includes identifying a plurality of mutations in the neoplasia, analyzing the plurality of mutations to identify a subset of at least five neo antigenic mutations predicted to encode neo-antigenic peptides, the neo-antigenic mutations selected from the group consisting of missense mutations, neoORF mutations, and any combination thereof, and producing, based on the identified subset, a personalized neoplasia vaccine.

24.3919076SYNTHETISCHE OLIGOSACCHARIDIMPFSTOFFE GEGEN STREPTOCOCCUS PNEUMONIAE MIT MIKROPARTIKEL-ADJUVANS-FORMULIERUNGEN
EP - 08.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud 20177903 Solicitante MAX PLANCK GESELLSCHAFT Inventor/a
The present invention relates to a vaccine comprising at least one glycoconjugate of synthetic Streptococcus pneumoniae oligosaccharides and a carrier protein, and at least one agonist or activator of toll-like receptors such as TLR1, 2, 4, 6, 7, 8, or 9, wherein the at least one glycoconjugate and the at

least one adjuvant are encapsulated in biodegradable polymer particles. The vaccine of present invention is useful for the prevention and/or treatment of diseases caused by Streptococcus pneumoniae, in particular Streptococcus pneumoniae serotype 3.

25.WO/2021/244996SYNTHETIC OLIGOSACCHARIDE VACCINES AGAINST STREPTOCOCCUS PNEUMONIAE WITH MICROPARTICLE ADJUVANT FORMULATIONS
WO - 09.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud PCT/EP2021/064471 Solicitante MAX-PLANCK-GESELLSCHAFT ZUR FÖRDERUNG DER WISSENSCHAFTEN E.V. Inventor/a SEEBERGER, Peter
The present invention relates to a vaccine comprising at least one glycoconjugate of synthetic Streptococcus pneumoniae oligosaccharides and a carrier protein, and at least one agonist or activator of toll-like receptors such as TLR1, 2, 4, 6, 7, 8, or 9, wherein the at least one glycoconjugate and the at least one adjuvant are encapsulated in biodegradable polymer particles. The vaccine of present invention is useful for the prevention and/or treatment of diseases caused by Streptococcus pneumoniae, in particular Streptococcus pneumoniae serotype 3.

26.20210369828PLANT VIRUS BASED CANCER ANTIGEN VACCINE
US - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17333797 Solicitante CASE WESTERN RESERVE UNIVERSITY Inventor/a Nicole F. Steinmetz
A vaccine composition includes an icosahedral-shaped plant virus or virus-like particle linked to a plurality of NY-ESO-1 antigens.

27.3919074IMPFSTOFFZUSAMMENSETZUNGEN MIT TRYPTOPHAN-2,3-DIOXYGENASE ODER FRAGMENTEN DAVON
EP - 08.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 21176526 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 Tryptophan 2,3-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.

28.20210379181CORONAVIRUS VACCINE
US - 09.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud 17231261 Solicitante CureVac AG Inventor/a Susanne RAUCH
The present invention is directed to a nucleic acid suitable for use in treatment or prophylaxis of an infection with a coronavirus, preferably with a Coronavirus SARS-CoV-2, or a disorder related to such an infection, preferably COVID-19. The present invention is also directed to compositions, polypeptides, and vaccines. The compositions and vaccines preferably comprise at least one of said nucleic acid sequences, preferably nucleic acid sequences in association a lipid nanoparticle (LNP). The invention is also directed to first and second medical uses of the nucleic acid, the composition, the polypeptide, the combination, the vaccine, and the kit, and to methods of treating or preventing a coronavirus infection, preferably a Coronavirus infection.

29.WO/2021/241240PROTEIN MOLECULE USEFUL FOR ANTI-PSEUDOMONAS AERUGINOSA VACCINE
WO - 02.12.2021
Clasificación Internacional C12N 15/62 Nº de solicitud PCT/JP2021/018141 Solicitante KYOTO PREFECTURAL PUBLIC UNIVERSITY CORPORATION Inventor/a SAWA, Teiji
To provide a protein molecule that is useful for an anti-Pseudomonas aeruginosa vaccine. A protein molecule including a PcrV antigen domain and at least one domain selected from the group consisting of OprF antigen domains and Exotoxin A antigen domains.

30.20210381060CANCER SPECIFIC IMMUNOTHERAPEUTIC TARGETS GENERATED BY CHEMOTHERAPEUTIC DRUG TREATMENT
US - 09.12.2021
Clasificación Internacional C12Q 1/6886 Nº de solicitud 17287448 Solicitante Health Research, Inc. Inventor/a Yurij IONOV
Provided are methods for identifying antigens containing amino acid sequences for use in a cancer vaccine. The vaccines and methods of use for prophylaxis and/or therapy of cancer are included. The method involves: i) exposing cancer cells to a chemotherapeutic agent that damages DNA; ii) determining open reading frames encoded by mRNA transcribed from a gene in the cancer cells of i); iii) comparing the open reading frames of the mRNA of i) to open reading frames encoded by mRNA transcribed from the gene in the cancer cells that were not exposed to the chemotherapeutic agent, iv) determining a different open reading frame encoded by the mRNA of i) and an open reading frame of the mRNA of ii), wherein the different open reading frame encoded by the mRNA of i) encodes a contiguous amino acid sequence comprising the sequence of the antigen for use in the cancer vaccine.

31.3916005IMMUNOGENE ZUSAMMENSETZUNG
EP - 01.12.2021
Clasificación Internacional C07K 14/165 Nº de solicitud 21171734 Solicitante ADIMMUNE CORP Inventor/a LENG CHIH-HSIANG
An immunogenic composition, a SARS-CoV-2 vaccine and a vector are introduced. The immunogenic composition has a recombinant protein having a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, and any polypeptide encoded by a polynucleotide which is at least 80% homologous with SEQ ID NO: 1-4, wherein the recombinant protein contains an IgGI Fc protein fragment having a length of at least 6 amino acids; or a nucleic acid molecule encoding the recombinant protein. The SARS-CoV-2 vaccine has the above recombinant protein or the nucleic acid molecule encoding the above recombinant protein. The vector has the nucleic acid molecule encoding the above recombinant protein.

32.20210369839MICRONEEDLE SYSTEM FOR APPLYING A HEPATITIS VACCINE
US - 02.12.2021
Clasificación Internacional A61K 39/29 Nº de solicitud 16762539 Solicitante LTS LOHMANN THERAPIE-SYSTEME AG Inventor/a Andreas HENNING
The present invention relates to a microneedle system (MNS for short) for the intradermal application of a hepatitis vaccine, namely the antigen HBsAg.

33.20210369834Application of Heptoglycan-chain-containing Oligosaccharide Compounds in Preparation of Vaccine against Helicobacter pylori
US - 02.12.2021
Clasificación Internacional A61K 39/02 Nº de solicitud 17391061 Solicitante Jing Hu Inventor/a Jing Hu
Disclosed is the application of heptoglycan-chain-containing oligosaccharide compounds in preparation of a vaccine against *Helicobacter pylori*, belonging to the field of medicine. Different antigen

oligosaccharides were obtained by chemical synthesis and fixed onto a chip surface to prepare a synthetic oligosaccharide chip. With animal immunization experiments and synthetic oligosaccharide chip analysis, the antibodies in antiserum produced by *Helicobacter pylori* polysaccharide immunization are used to determine the structure-activity relationship between the synthetic oligosaccharides and immunogenicity. It is found that the heptoglycan chain in the oligosaccharide compounds is an important immune epitope, and oligosaccharides containing α-(1→3) heptoglycan chain can be used in preparation and development of vaccines for prevention and treatment of *Helicobacter pylori* infection.

34.3914708NUCLEIC ACID NANOSTRUCTURE PLATFORM FOR ANTIGEN PRESENTATION AND VACCINE FORMULATIONS FORMED THEREFROM
EP - 01.12.2021
Clasificación Internacional C12N 15/11 Nº de solicitud 20709799 Solicitante MASSACHUSETTS INST TECHNOLOGY Inventor/a BATHE MARK
Compositions containing a nucleic acid nanostructure having a desired geometric shape and antigens bound to its surface are provided. The nanostructures can be, for example, in the form of a 6-helix bundle or icosahedron. The nanostructure design allows for control of the relative position and/or stoichiometry of the antigen bound to its surface. The antigens displayed on the nanostructure surface are arranged with the preferred number, spacing, and 3D organization to elicit a robust immune response. The displayed antigen can be an HIV immunogen such as eOD-GT6, eOD-GT8, or variants thereof. The compositions may thus be useful as immunogens, vaccines, immunostimulators, adjuvants, and the like. Methods of inducing immune responses, inducing protective immunity, inducing the production of neutralizing antibodies or inhibitory antibodies, inducing tolerance, and treating cancer, infectious or autoimmune diseases are also provided.

35.20210369826PERSONALIZED IMMUNOTHERAPY AGAINST SEVERAL NEURONAL AND BRAIN TUMORS
US - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17390583 Solicitante Immatics Biotechnologies GmbH Inventor/a Sabrina KUTTRUFF-COQUI
The present invention relates to peptides, 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 cytotoxic T cell (CTL) peptide epitopes, alone or in combination with other tumor-associated peptides that serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses. The present invention relates to peptide sequences and their variants derived from HLA class I and class II molecules of human tumor cells that can be used in vaccine compositions for eliciting anti-tumor immune responses.

36.3456339Hidtil ukendt immunterapi mod flere forskellige tumorer, såsom lungecancer, herunder NSCLC
DK - 06.12.2021
Clasificación Internacional A61K 38/17 Nº de solicitud 18201334 Solicitante immatics biotechnologies GmbH Inventor/a FRITSCHE, Jens
The present invention relates to peptides, 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 cytotoxic T cell (CTL) peptide epitopes, alone or in combination with other tumor-associated peptides that serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses. The present invention relates to more than 70 novel peptide sequences and their variants derived from HLA class I and HLA class II molecules of human tumor cells that can be used in vaccine compositions for eliciting anti-tumor immune responses.

37.20210368827COMPOSITION AND/OR COMBINATION FOR AQUACULTURE
US - 02.12.2021
Clasificación Internacional A23K 50/80 Nº de solicitud 17150254 Solicitante OmniGen Research, LLC Inventor/a Ra'anan Ariav
Disclosed embodiments concern a composition and/or combination, and a method of administering the same as a feed, or to supplement the feed of, aquatic animals, particularly for aquaculture. Disclosed composition and/or combination embodiments may comprise glucan, silica, mineral clay, mannans, *yucca, quillaja*, a probiotic, and/or an adhesive agent. The adhesive agent may be selected particularly to facilitate administration to aquatic species. In certain embodiments the adhesive agent comprises an oil, such as soy oil, or a syrup, such as molasses, or combinations thereof. In some embodiments the composition and/or combination may further comprise polyphenol, an antimicrobial, and/or a vaccine. Also disclosed is a method for promoting growth and/or immune function in aquatic animals.

38.WO/2021/241928STRUCTURALLY MODIFIED CHIMERIC POLYPEPTIDE OF HUMAN PAPILLOMAVIRUS, RECOMBINANT PROTEIN COMPRISING SAME POLYPEPTIDE, AND USE OF SAME PROTEIN
WO - 02.12.2021
Clasificación Internacional C07K 14/005 Nº de solicitud PCT/KR2021/006075 Solicitante GENEMATRIX INC. Inventor/a KIM, Soo Ok
The present invention relates to a chimeric recombinant protein having a therapeutic effect on cervical cancer through the fusion of a fusion protein for increasing immunogenicity and a genetic modification of E6 and E7, which are carcinogenic proteins of high-risk human papillomavirus type 16. The HPV type 16 E6/E7 chimeric recombinant protein of the present invention that is fused with a fusion protein of flagellin showed the lowest tumor cell volume, the immune response of specific T cells according to the recombinant antigen was confirmed to be significant, and, when the preventive effect thereof was measured, the tumor cell volume was low, and increased antibody titers were confirmed. In addition, the human papillomavirus recombinant antigen of the present invention exhibits therapeutic and preventive effects on tumors and can be applied as a therapeutic/preventive vaccine composition.

39.20210371440TLR7 AND / OR TLR8 AGONISTS
US - 02.12.2021
Clasificación Internacional C07F 9/6561 Nº de solicitud 17043549 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Helene BAZIN-LEE
The invention relates to a novel lipidated oxoadenine compound of formula (I) and its use as a vaccine

adjuvant and as a TLR7 and/or TLR8 agonist.

40.20210369774MICRO-RNA-155 ENHANCES THE EFFICACY OF DENDRITIC CELL VACCINE FOR CANCER
US - 02.12.2021
Clasificación Internacional A61K 35/15 Nº de solicitud 17384993 Solicitante University of South Carolina Inventor/a Daping Fan
Engineered dendritic cell vaccines, and methods of forming and applying same, that may be used as effective immunotherapies for cancers.

41.20210373018LATERAL FLOW DETECTION DEVICE FOR DETECTING A CORONAVIRUS BY IMMUNOASSAY
US - 02.12.2021
Clasificación Internacional G01N 33/569 Nº de solicitud 17244129 Solicitante Hangzhou Biotest Biotech Co., LTD. Inventor/a Chunsheng Ye

The present invention provides a lateral flow test device for detecting a coronavirus antibody by immunoassay; the test device includes three lateral flow test strips; a first test strip is directed to the antibody detection of a N full-length protein and/or an S full-length protein antigens/antigen; and a second test strip is directed to the antibody detection of an S-RBD-site protein antigen, and both of the first strip and the second strip are combined to detect novel coronavirus IgG and IgM antibodies, which can practically reduce the possibility of missing detection and wrong detection; further, a third test strip is directed to the detection of a neutralizing antibody at an S-RBD site to rapidly detect the neutralizing antibody having protection effect, thus further helping the prevention of missing detection and helping patients to perform self-detection and judge the situations of recovery, or vaccine immunity.

42.WO/2021/241327HIGH PROTEIN FOOD AND METHOD FOR MANUFACTURING SAME
WO - 02.12.2021
Clasificación Internacional A23L 5/00 Nº de solicitud PCT/JP2021/018780 Solicitante ORTHO CORPORATION Inventor/a HASHIMOTO Shunsuke
Provided is a high protein food that comprises, as an active ingredient, immunoglobulin G contained in raw milk milked from a cow, said cow having been administered with a vaccine comprising multiple kinds of attenuated pathogenic bacteria. Also provided is a method for manufacturing the high protein food. The high protein food comprises a powdery composition containing active immunoglobulin G and a fat or oil coating the surface of the powdery composition. The method for manufacturing the high protein food comprises a coagulation granulation step for feeding a powdery composition containing active immunoglobulin G to a fluidized bed granulator, at the same time, flowing air that is controlled to a temperature lower than 60°C into the fluidized bed granulator, and spraying a fat or oil to the powdery composition while fluidizing the powdery composition by the air to thereby carry out coagulation granulation.

43.3915577PEPTIDE, KOMBINATION VON PEPTIDEN UND AUF ZELLEN BASIERENDE ARZNEIMITTELN ZUR VERWENDUNG IN DER IMMUNTHERAPIE GEGEN BLASENKREBS UND ANDERE KREBSERKRANKUNGEN
EP - 01.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 21171324 Solicitante IMMATICS BIOTECHNOLOGIES GMBH Inventor/a MAHR ANDREA
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.

44.3915575IMPFSTOFFFORMULIERUNGEN
EP - 01.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 20177311 Solicitante IMNATE SARL Inventor/a SAINT-REMY JEAN-MARIE
A method to elicit CD4+ T cells with an immune suppressive function towards a given MHC Class II epitope present in a specific target tissue and/or to elicit CD4+ T cells harbouring homeostasis restoration properties for a specific target tissue, based on an MHC Class II epitope modified by the addition of a redox motif, the corresponding modified epitopes, pharmaceutical uses, kits of parts, and gene edition system for use in a patient.

45.20210379169TELEOST INVARIANT CHAIN CANCER VACCINE

US - 09.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17281942 Solicitante NOUSCOM AG Inventor/a Alfredo NICOSIA
The present invention relates to polypeptides comprising a fragment of a teleost invariant chain optionally fused to one or more antigens or a teleost invariant chain fused to one or more antigens or antigenic fragments thereof, a polynucleotide encoding such polypeptides, vectors comprising such polynucleotides, collection of vectors comprising such polynucleotides and use of such polypeptides, polynucleotides, vectors for treating or preventing diseases, in particular tumor diseases. The teleost invariant chain polypeptides or fragments thereof act as “T cell enhancer” converting non-immunogenic antigenic sequences into immunogenic T cell antigens.

46.WO/2021/240013VACCINE FORMULATIONS
WO - 02.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/EP2021/064500 Solicitante IMNATE SARL Inventor/a SAINT-REMY, Jean-Marie
A method to elicit CD4+ T cells with an immune suppressive function towards a given MHC Class II epitope present in a specific target tissue and/or to elicit CD4+ T cells harbouring homeostasis restoration properties for a specific target tissue, based on an MHC Class II epitope modified by the addition of a redox motif, the corresponding modified epitopes, pharmaceutical uses, kits of parts, and gene edition system for use in a patient.

47.3914289DOSIERUNGSSCHEMA EINER KOMBINATIONSIMMUNOTHERAPIE FÜR IMMUNPRÜFPUNKTBLOCKADE
EP - 01.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 19832477 Solicitante MASSACHUSETTS INST TECHNOLOGY Inventor/a WANG CHENSU
The present disclosure provides a method of treating cancer with a priming dose of combination immunotherapy comprising IL-2 (e.g., extended-PK IL-2), an immune checkpoint inhibitor, a tumor targeting antibody or integrin-binding polypeptide, and optional cancer vaccine, administered prior to maintenance doses of immune checkpoint inhibitor therapy. The methods of the disclosure can be used to treat a broad range of cancer types.

48.2021269395Improved methods for enterovirus inactivation, adjuvant adsorption and dose reduced vaccine compositions obtained thereof
AU - 09.12.2021
Clasificación Internacional Nº de solicitud 2021269395 Solicitante Serum Institute of India Private Limited Inventor/a

49.3915579IMPFSTOFFFORMULIERUNGEN MIT EINZELPHIOLE
EP - 01.12.2021
Clasificación Internacional A61K 39/085 Nº de solicitud 21160158 Solicitante INFECTIOUS DISEASE RES INST Inventor/a FOX CHRISTOPHER B
The invention provides for thermostable lyophilized formulations, including vaccines and pharmaceutical compositions for inducing or enhancing an immune response, and methods of use thereof. The lyophilized formulations generally comprise an antigen and/or an adjuvant, a metabolizable oil, and a cake-forming excipient.

50.20210369831CLOSTRIDIUM DIFFICILE MULTI-COMPONENT VACCINE
US - 02.12.2021
Clasificación Internacional A61K 39/08 Nº de solicitud 17321719 Solicitante Matrivax, Inc. Inventor/a Kevin Killeen

Immunogenic compositions for combating *C. difficile* infection are disclosed comprising an admixture of at least two components (a) and (b), where

- component (a) comprises inactivated cells of at least one strain of *C. difficile*, or cell surface extracts (CSE) from one or more strains of *C. difficile* bacteria; and
- component (b) comprises at least one toxoid or a non-toxic, immunogenic polypeptide fragment of a *C. difficile* Toxin A or Toxin B. Administration of the immunogenic composition is effective to elicit an immune response in a subject immunized with said composition to produce antibodies reactive with at least one *C. difficile* strain and at least one *C. difficile* toxin.

51.WO/2021/238982PHARMACEUTICAL COMPOSITION COMPRISING POLYNUCLEOTIDES AND USE THEREOF FOR PREVENTION OR TREATMENT OF COVID-19
WO - 02.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/096048 Solicitante LIAONING YISHENG BIOPHARMA CO., LTD. Inventor/a ZHANG, Yi
The present application relates to a pharmaceutical composition comprising polynucleotides and use thereof for prevention or treatment of COVID-19. More specifically, disclosed in the present application is a composition used for prevention or treatment of COVID-19, comprising a polyriboinosinic-polyribocytidylic acid, an antibiotic or polyamino compound, a positive ion, and an optional antigen derived from novel coronavirus SARS-CoV-2. Also provided is use of the composition in preparation of a drug or vaccine for prevention or treatment of novel coronavirus SARS-CoV-2.

52.20210371462CDCA1-DERIVED PEPTIDE AND VACCINE CONTAINING SAME
US - 02.12.2021
Clasificación Internacional C07K 7/06 Nº de solicitud 17264277 Solicitante ONCOTHERAPY SCIENCE, INC. Inventor/a SACHIKO YAMASHITA
The present invention provides CDCA1-derived epitope peptides having the ability to induce cytotoxic T cells. The present invention further provides polynucleotides encoding the peptides, antigen-presenting cells presenting the peptides, and cytotoxic T cells targeting the peptides, as well as methods of inducing the antigen-presenting cells or CTLs. The present invention also provides compositions and pharmaceutical compositions containing them as an active ingredient. Further, the present invention provides methods of treating and/or preventing cancer, and/or preventing postoperative recurrence thereof, using the peptides, polynucleotides, antigen-presenting cells, cytotoxic T cells or pharmaceutical compositions of the present invention. Methods of inducing an immune response against cancer are also provided.

53.20210379189Immunomodulatory Compounds
US - 09.12.2021
Clasificación Internacional A61K 47/62 Nº de solicitud 17337489 Solicitante Leidos, Inc. Inventor/a Gabriel M. Gutierrez
This disclosure provides peptide conjugates that are useful for inhibiting the progression of a hyperproliferative disorder, inhibiting the progression of sepsis, inhibiting the progression of an infectious disease, enhancing a response to a vaccine, or inhibiting the progression of a synucleinopathy.

54.20210379174COMPOSITIONS COMPRISING STREPTOCOCCUS PNEUMONIAE POLYSACCHARIDE-PROTEIN CONJUGATES AND METHODS OF USE THEREOF
US - 09.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud 17374424 Solicitante Merck Sharp & Dohme Corp. Inventor/a William J. Smith

The invention is related to multivalent immunogenic compositions comprising more than one *S. pneumoniae* polysaccharide protein conjugates, wherein each of the conjugates comprises a polysaccharide from an *S. pneumoniae* serotype conjugated to a carrier protein, wherein the serotypes of *S. pneumoniae* are as defined herein. In some embodiments, at least one of the polysaccharide protein conjugates is formed by a conjugation reaction comprising an aprotic solvent. In further embodiments, each of the polysaccharide protein conjugates is formed by a conjugation reaction comprising an aprotic solvent. Also provided are methods for inducing a protective immune response in a human patient comprising administering the multivalent immunogenic compositions of the invention to the patient. The multivalent immunogenic compositions are useful for providing protection against *S. pneumoniae* infection and diseases caused by *S. pneumoniae*. The compositions of the invention are also useful as part of treatment regimes that provide complementary protection for patients that have been vaccinated with a multivalent vaccine indicated for the prevention of pneumococcal disease.

55.WO/2021/243122ENGINEERED CORONAVIRUS SPIKE (S) PROTEIN AND METHODS OF USE THEREOF
WO - 02.12.2021
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/US2021/034713 Solicitante BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM Inventor/a MCLELLAN, Jason
Provided herein are engineered Coronavirus S proteins, such as engineered SARS-CoV-2 S proteins. In some aspects, the engineered S proteins exhibit enhanced conformational stability and/or antigenicity. Methods are also provided for use of engineered proteins as diagnostics, in screening platforms and/or in vaccine compositions.

56.WO/2021/245313VARIANTE ATENUADA DEL VIRUS DE LA FIEBRE DEL VALLE DEL RIFT, COMPOSICIÓN QUE LA COMPRENDE Y USOS DE LA MISMA
WO - 09.12.2021
Clasificación Internacional C12N 7/04 Nº de solicitud PCT/ES2021/070403 Solicitante INSTITUTO NACIONAL DE INVESTIGACIÓN Y TECNOLOGÍA AGRARIA Y ALIMENTARIA (INIA) Inventor/a BRUN TORRES, Alejandro
La invención se refiere a una variante atenuada del virus de la fiebre del valle del Rift (VFVR) con mutaciones en la secuencia de aminoácidos codificada por los segmentos L, M y S del ARN del virus VFVR; composición farmacéutica o veterinaria que comprende la misma; variante atenuada del VFVR para uso en la prevención de la fiebre del valle del Rift y vacuna de la fiebre del valle del Rift que comprende la variante atenuada del VFVR. Además, se incluyen variantes atenuadas del virus VFVR con las mutaciones Gly924Ser y Alal303Thr en la proteína L, y la sustitución Pro82Leu en la proteína NSs.

57.WO/2021/247789IMMUNOMODULATORY COMPOUNDS
WO - 09.12.2021
Clasificación Internacional C07K 14/47 Nº de solicitud PCT/US2021/035580 Solicitante LEIDOS, INC. Inventor/a GUTIERREZ, Gabriel M.
This disclosure provides peptide conjugates that are useful for inhibiting the progression of a hyperproliferative disorder, inhibiting the progression of sepsis, inhibiting the progression of an infectious disease, enhancing a response to a vaccine, or inhibiting the progression of a synucleinopathy.

58.WO/2021/239880NUCLEIC ACID BASED COMBINATION VACCINES
WO - 02.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/064216 Solicitante CUREVAC AG Inventor/a OOSTVOGELS, Cornelia
The present invention is inter alia directed to pharmaceutical compositions comprising at least one nucleic acid encoding at least one antigenic peptide or protein from a Coronavirus, preferably a pandemic

Coronavirus, and at least one nucleic acid encoding at least one antigenic peptide or protein from a further virus, e.g. an Influenza virus or an RSV virus. Pharmaceutical compositions provided herein are suitable for use in treatment or prophylaxis of an infection with at least one Coronavirus and at least one further virus infection, and may therefore be comprised in a combination vaccine. The nucleic acid sequences of the pharmaceutical compositions and combination vaccines are preferably in association with a polymeric carrier, a polycationic protein or peptide, or a lipid nanoparticle (LNP). The invention is also directed to first and second and further medical uses of the pharmaceutical compositions and combination vaccines, and to methods of treating or preventing a Coronavirus infection and a further virus infection.

59.3915570AUF INDOLAMIN-2,3-DIOXYGENASE BASIERENDE IMMUNTHERAPIE
EP - 01.12.2021
Clasificación Internacional A61K 38/17 Nº de solicitud 21157371 Solicitante IO BIOTECH APS Inventor/a ANDERSEN MADS HALD
The present invention relates to the field of prophylaxis and therapy of cancer. In particular there is provided a protein Indoleamine 2,3-dioxygenase (IDO) or peptide fragments here of that are capable of eliciting anti-cancer immune responses. Specifically, the invention relates to the use of IDO or peptides derived here from or IDO 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 IDO 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.The use of IDO and immunogenic peptide fragments hereof in cancer and infection treatment, diagnosis and prognosis is also provided.

60.20210379186ADDITIVES FOR PROTEIN FORMULATIONS TO IMPROVE THERMAL STABILITY
US - 09.12.2021
Clasificación Internacional A61K 47/26 Nº de solicitud 17048443 Solicitante MERCK PATENT GMBH Inventor/a Tobias ROSENKRANZ
The present invention relates to excipients for special protein formulations, which are suitable to improve the thermal stability against denaturation and deactivation. In particular, the present invention relates to additives for thermostabilizing of vaccine formulations.

61.WO/2021/244628PHARMACEUTICAL COMPOSITION OF ENZYMES AND VIRUSES AND APPLICATION THEREOF
WO - 09.12.2021
Clasificación Internacional A61K 39/395 Nº de solicitud PCT/CN2021/098263 Solicitante SHANGHAI BAO PHARMACEUTICALS CO., LTD. Inventor/a LIU, Yanjun
Disclosed in the present invention is a pharmaceutical composition, comprising: 1) a reagent for reducing bonding between an Fc receptor and an endogenous serum antibody, wherein the reagent comprises an immunoglobulin degrading enzyme or endo-glycosidase; and 2) a viral vector drug, wherein the viral vector drug is selected from an oncolytic virus and a viral vaccine. The pharmaceutical composition allows individual administration of the viral vector drug and the reagent. Further disclosed in the present invention are an application of the pharmaceutical composition in the preparation of a drug for treating or preventing disasters, and a method for applying the pharmaceutical composition to a subject to treat or prevent cancers or infections.

62.3917567ÖL-/TENSIDMISCHUNGEN ZUR SELBSTEMULGIERUNG
EP - 08.12.2021

Clasificación Internacional A61K 39/39 Nº de solicitud 20713117 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a LODAYA RUSHIT
Methods of manufacturing squalene and alpha-tocopherol-containing oil-in-water emulsions having small oil droplet particle sizes. Such emulsions being of use as vaccine adjuvants.

63.20210380546VACCINE ADJUVANT
US - 09.12.2021
Clasificación Internacional C07D 277/44 Nº de solicitud 17287914 Solicitante The Regents of the University of California Inventor/a Dennis Carson
Compounds useful as an adjuvant, e.g., formulas (I)-(VI) and uses thereof, for example, with immunogenic moieties or other adjuvants, are provided.

64.20210371474Tuberculosis Compositions And Methods Of Using The Same
US - 02.12.2021
Clasificación Internacional C07K 14/35 Nº de solicitud 17236409 Solicitante International AIDS Vaccine Initiative, Inc. Inventor/a Ravi Anantha
The present disclosure provides fusion proteins comprising *Mycobacterium tuberculosis* (Mtb) antigens, nucleic acid molecules encoding the same, vectors comprising nucleic acid molecules, compositions comprising the same, and methods of eliciting an immune response against tuberculosis.

65.WO/2021/238836CANTHARIDIN ANTIVIRAL AND ANTIBACTERIAL PREPARATION, PREPARATION METHOD THEREFOR, AND USE THEREOF FOR PREVENTING AND TREATING NOVEL CORONAVIRUS INFECTION
WO - 02.12.2021
Clasificación Internacional A61K 31/365 Nº de solicitud PCT/CN2021/095429 Solicitante GANSU YUANMEI PHARMACEUTICAL CO., LTD. Inventor/a WANG, Wei
Disclosed is a cantharidin antiviral and antibacterial preparation, containing cantharidin as an effective drug ingredient. The cantharidin is dissolved in an oil-water miscible substance or an oil-oil miscible substance to obtain a cantharidin solvent carrier, and the cantharidin solvent carrier is formulated with a pharmaceutically acceptable carrier or excipient into various dosage forms of antiviral and antibacterial drugs. The drugs can be used to prevent and treat a novel coronavirus infection, and the cantharidin solvent carrier can also be used as a solution for preparing an ecological antibiotic inactivated vaccine against novel coronavirus.

66.3915586STABILISIERENDES ADJUVANS FÜR IMPFSTOFF MIT INAKTIVIERTEM VOLLVIRUS
EP - 01.12.2021
Clasificación Internacional A61K 47/00 Nº de solicitud 20215726 Solicitante SANOFI PASTEUR Inventor/a FRANCON ALAIN
L'invention a pour objet une composition vaccinale comprenant :a) du virus entier inactivé et,b) un excipient stabilisant qui comprend :i. une solution tampon,ii. un mélange d'acides aminés essentiels et non essentiels,iii. un disaccharide,iv. un polyol,v. un agent chélatant,vi. de l'urée ou un dérivé de l'urée, etvii. un tensioactif non ionique.

67.20210368744Module For Operational Control Of The Guided Advance/Withdrawal Device Of The Needle Added To The Smart Substance Injection Device On Board Equipment For Inoculating Substances Inside A Fertile Egg And Smart Method For Injection Inside A Fertile Egg
US - 02.12.2021
Clasificación Internacional A01K 45/00 Nº de solicitud 16760143 Solicitante PAS REFORM B.V. Inventor/a Hernani Telles ASSUNCAO
Module for operational control of the guided advance/withdrawal device of the needle added to the smart substance injection device on board equipment for inoculating substances inside a fertile egg and smart

method for injection inside a fertile egg, wherein the “inoculation of substances” inside a fertile egg, be this into the embryo, in the case of vaccines, and even into the amniotic fluid, in the case of a nutrient or nutritional vaccine complex, allows the injection needle (11) to be brought close at a controlled speed.

68.WO/2021/245679A SARS-COV-2 VACCINE
WO - 09.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/IL2021/050670 Solicitante THE ISRAEL INSTITUTE OF BIOLOGICAL RESEARCH Inventor/a TAMIR, Hadas
The present invention provides a recombinant vesicular stomatitis virus (VSV) comprising a SARS-CoV-2 spike protein (rV SV-AG- spike), as well as immunogenic compositions comprising rVSV-AG-spike, and their use for vaccination against SARS- CoV-2.

69.20210369635NOVEL METHODS OF VACCINATION USING ICOSAHEDRAL PHAGE
US - 02.12.2021
Clasificación Internacional A61K 9/70 Nº de solicitud 16767737 Solicitante Adaptive Phage Therapeutics, Inc. Inventor/a Carl Merril A transdermal membrane comprising a non-infectious icosahedral phage vaccine displaying an antigen is described wherein the membrane is stable at room temperature for greater than 3 months and uses thereof to vaccinate a subject against the antigen.

70.WO/2021/240039REPLICONES DE ARN DE CORONAVIRUS Y SU USO COMO VACUNAS
WO - 02.12.2021
Clasificación Internacional C12N 7/04 Nº de solicitud PCT/ES2021/070378 Solicitante CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS (CSIC) Inventor/a ENJUANES SÁNCHEZ, Luis
Replicón de ARN derivado un coronavirus al que se ha delecionado total o parcialmente: el gen que codifica la proteína E y al menos 4 genes que codifican proteínas accesorias de género seleccionados entre: 3, 4a, 4b y 5, en el caso de MERS-CoV. Método de preparación del mismo, y su uso en composiciones vacunales.

71.20210379182BIVALENT DENGUE/HEPATITIS B VACCINES
US - 09.12.2021
Clasificación Internacional A61K 39/295 Nº de solicitud 16612152 Solicitante UNIVERSITY OF MASSACHUSETTS Inventor/a Daniel H. Libraty
The present invention relates to the construction of, and immunization with viral vaccines. In particular, bivalent vaccines that are capable of providing simultaneous virus infection protection for two or more different viruses. Furthermore, the bivalent vaccines contemplated herein are contemplated as being effective in a neonatal mammal. One such bivalent viral vaccine comprises two antigenic epitopes against the dengue viruses and at least one antigenic epitope against hepatitis B virus. Immunization cross-reactivity may also provide infection protection against other viruses as well.

72.20210371496ANTI-PD-1 VACCINE COMPOSITION
US - 02.12.2021
Clasificación Internacional C07K 14/705 Nº de solicitud 16978919 Solicitante PEPTINOV SAS Inventor/a Lucille DESALLAIS
The present invention relates to a polypeptide which comprises or consists of:—a first sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 123 to 137 of the PD-1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-1 protein; and/or—a second sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 66 to 81 of the PD-1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-1 protein; and/or—a third sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 95

to 110 of the PD-1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-1 protein; and/or—a fourth sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 22 to 33 of the PD-1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-1 protein.

73.3917565MODIFIZIERTER STAMM VON SALMONELLA ENTERICA TYPHI
EP - 08.12.2021
Clasificación Internacional A61K 39/112 Nº de solicitud 20702639 Solicitante PROKARIUM LTD Inventor/a CRANENBURGH ROCKY MARC
The present invention relates to the modification of a live attenuated strain of *Salmonella enterica* serovar Typhi, wherein its natural surface-exposed polysaccharide and flagellin antigens may be converted to, or augmented by, those from other strains of *Salmonella*, including S. *enterica* serovars Paratyphi, Typhimurium and Enteritidis. The present invention also relates to modified strains of *Salmonella enterica* serovar Typhi being suitable for use as components of a vaccine for enteric fever and salmonellosis.

74.WO/2021/247567CORONAVIRUS VACCINE CONSTRUCTS AND METHODS OF MAKING AND USING SAME
WO - 09.12.2021
Clasificación Internacional A61K 39/235 Nº de solicitud PCT/US2021/035239 Solicitante WASHINGTON UNIVERSITY Inventor/a CURIEL, David
Compositions and methods for treating a viral infection may comprise use of an adenoviral vector. An adenoviral vector of the present disclosure may comprise a non-human adenoviral genome with one or more gene locus functionally removed and a transgene. A method of treating a viral infection may comprise administering a composition comprising an adenoviral vector of the present disclosure, to a subject and reducing the infectivity or transmission of the virus. Intranasal administration provides enhance protection of the upper respiratory tract of a subject relative to intramuscular administration.

75.20210379172POLY(DIAMINOSULFIDE) PARTICLE-BASED VACCINE
US - 09.12.2021
Clasificación Internacional A61K 39/02 Nº de solicitud 17119384 Solicitante University of Iowa Research Foundation Inventor/a Aliasger K. Salem
A composition comprising particles formed of poly(diamidosulfide) and one or more leptospiral antigens, and methods of making and using the composition, are provided.

76.2021269320PNEUMOCOCCAL VACCINE COMBINING SELECTED ALPHA HELICAL DOMAINS AND PROLINE RICH DOMAINS OF PNEUMOCOCCAL SURFACE PROTEIN A
AU - 09.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud 2021269320 Solicitante The UAB Research Foundation Inventor/a
The present embodiments provide compositions and methods related to novel recombinant protein immunogens, comprising specific portions of alpha helical domains (aHD) and proline rich regions (PRD) of pneumococcal surface protein A (PspA), which portions are linked to provide aHD-PRD constructs. The aHD and PRD proteins constituting the aHD-PRD constructs are selected to maximize cross-reactivity and provide protection against a broad spectrum of pneumococcal serotypes. Immunogenic compositions, including vaccines, comprising at least one aHD-PRD construct may also include a non-linked aHD portion. Also provided are recombinant nucleic acid molecules that encode aHD-PRD constructs, vectors and recombinant host cells containing such molecules, aHD-PRD expression products, use of such nucleic acid molecules to express aHD-PRD constructs by recombinant techniques, and use of the

expression products to elicit an immune or protective response against pneumococcal disease in a suitable host.

77.20210380662Novel peptides, combination of peptides as targets and for use in immunotherapy against gallbladder cancer and cholangiocarcinoma and other cancers
US - 09.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 17401678 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.

78.WO/2021/245207USE OF E. COLI STRAINS EXPRESSING HIGH LEVEL OF ALPHA-GAL TO MODULATE IMMUNITY AND PROVIDE PROTECTION AGAINST INFECTIOUS DISEASES IN ANIMALS
WO - 09.12.2021
Clasificación Internacional A61K 35/74 Nº de solicitud PCT/EP2021/064947 Solicitante INSTITUT NATIONAL DE RECHERCHE POUR L' AGRICULTURE, L' ALIMENTATION ET L' ENVIRONNEMENT Inventor/a CABEZAS-CRUZ, Alejandro
The present invention concerns an E. coli strains expressing high level of α-Gal, in particular selected in the group consisting of E. coli Nissle 1917 strain, E. coli O111 strain, E. coli O86: B7 strain, and mixture thereof, as a probiotic and/or feed additive and/or oral vaccine in a non-human animal, in particular fish and poultry, to prevent and/or reduce an infectious disease caused by a pathogen expressing α-Gal on its surface.

79.WO/2021/247412MODIFIED ALPHAVIRUS FOR USE AS COVID-19 VACCINE
WO - 09.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/034842 Solicitante NEW YORK UNIVERSITY Inventor/a MERUELO, Daniel
Modified alphaviruses encoding a SARS-CoV-2 spike protein or antigenic segment of the SARS-CoV-2 spike protein are provided. The modified alphaviruses include replicative defective Sindbis viruses. The modified viruses express or are administered with an immunomodulatory agent that is an agonist antibody or antigen binding fragment thereof, or a cytokine, or a combination thereof. Pharmaceutical compositions that include the modified alphaviruses and methods of using the modified alphaviruses and compositions that contain them are provided. The compositions are used to stimulate a therapeutic or protective effect against SARS-CoV-2 infection that includes humoral and cell mediated responses.

80.WO/2021/247397METHODS AND COMPOSITIONS FOR ENHANCING THE IMMUNE SYSTEM
WO - 09.12.2021
Clasificación Internacional C07K 16/24 Nº de solicitud PCT/US2021/034777 Solicitante SIWA CORPORATION Inventor/a GRUBER, Lewis S.
A method of enhancing the immune system, treating immunosenescence or preventing immunosenescence comprises administering to a subject a composition comprising an anti-AGE antibody. A method of enhancing the immune system, treating immunosenescence or preventing immunosenescence comprises administering to a subject a vaccine comprising an AGE antigen. A method of killing senescent immune cells in a subject comprises administering to the subject a

composition comprising an anti-AGE antibody. The senescent immune cells are selected from the group consisting of white blood cells, mast cells, natural killer cells (NK cells), eosinophils, basophils, gamma/delta T cells (γδ T cells), phagocytic cells, macrophages, neutrophils, dendritic cells, T cells and B cells.

1.WO/2021/248853POLYPEPTIDE VACCINE COUPLED WITH TLR7 AGONIST FOR NOVEL CORONAVIRUS AND USE THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/CN2020/133168 Solicitante SHANGHAI INSTITUTE OF MATERIA MEDICA, CHINESE ACADEMY OF SCIENCES Inventor/a GONG, Likun
Disclosed are a polypeptide vaccine coupled with a TLR7 agonist for novel coronavirus and the use thereof. Specifically, the present invention provides a vaccine polypeptide for novel coronavirus pneumonia on the basis of the analytical study of the RBD sequence and structural information of the S protein of SARS-CoV-2, wherein the vaccine polypeptide has the following structural formula: Z-(J-U)n, where in the formula, Z, J, U, n, etc., are as defined in the description. Also provided in the present invention are a vaccine composition containing the vaccine polypeptide and the use thereof.

2.WO/2021/254287NOVEL CORONAVIRUS TANDEM EPITOPE POLYPEPTIDE VACCINE AND USE THEREOF
WO - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/099860 Solicitante SHANGHAI INSTITUTE OF MATERIA MEDICA, CHINESE ACADEMY OF SCIENCES Inventor/a GONG, Likun
Provided are a tandem epitope polypeptide vaccine for novel coronavirus and use thereof. Specifically, a vaccine polypeptide for novel coronavirus pneumonia is provided on the basis of analysis and study of the RBD sequence and structural information of the S protein of SARS-CoV-2. Said vaccine polypeptide comprises the following elements connected in series: a generic Th epitope sequence, a B cell epitope sequence and a T cell epitope sequence. The B cell epitope and the T cell epitope have an amino acid sequence from the RBM region of the S protein of SARS-CoV-2. Provided are a vaccine composition containing said vaccine polypeptide and use thereof. Experiments show that the vaccine polypeptide of the present invention can enable cynomolgus monkeys to initiate strong cellular and humoral immunity and to generate neutralizing antibodies that block the binding of RBD and ACE2, and can be used for preventing and treating novel coronavirus pneumonia.

3.WO/2021/261892METHOD FOR MASS-PRODUCING VACCINIA VIRUS BY USING SUSPENSION CELLS
WO - 30.12.2021
Clasificación Internacional C12N 7/00 Nº de solicitud PCT/KR2021/007835 Solicitante KOLON LIFE SCIENCE, INC. Inventor/a KIM, Sung Jin
The present invention relates to a method for mass-producing vaccinia virus by using suspension cells. The conventional method for producing vaccinia virus by using adherent cells has limitations that are not suitable for mass production of viruses due to the characteristics of adherent cells. By contrast, the present invention has developed a technology capable of producing viruses even in a bioreactor by using a low appropriate cell number, MOI, culture FBS concentration, and a medium while using suspension cells, and it was also confirmed that the present invention has high virus productivity similar to that in the case of using adherent cells. Accordingly, the technology of producing vaccinia virus by using suspension cells according to the present invention enables mass production of vaccinia virus with high productivity. Since it is possible to reduce production costs and period, manpower, etc. by using suspension cells, it is expected that the technology will be effectively used in clinical and commercial production fields that require mass production of vaccinia virus.

4.3925617REKOMBINANTES PROTEIN ZUR ELIMINATION VON EBERGERUCH UND DIESE ENTHALTENDE IMPFSTOFFZUSAMMENSETZUNG
EP - 22.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 20739841 Solicitante BIOAPPLICATIONS INC Inventor/a SOHN EUN-JU
The present invention relates to a vaccine composition for eliminating boar taint, comprising a recombinant protein in which a cholera toxin B subunit (CTB) and a gonadotropin-releasing hormone (GnRH) are fused. More specifically, the present invention provides: a recombinant protein for eliminating boar taint, for inducing an antibody against GnRH; a recombinant vector for producing same; a vaccine composition for eliminating boar taint, comprising the recombinant protein; and a method for eliminating boar taint using the vaccine composition. The vaccine composition according to the present invention has an effect of inducing an antibody against GnRH in a subject, thereby atrophying the testis. Therefore, the present invention can be effectively used to eliminate boar taint by immunologically castrating boars at a low cost and with high safety and minimal side effects.

5.3924052LEBENDE ATTENUIERTE INFLUENZA-IMPFSTOFFZUSAMMENSETZUNG UND VERFAHREN ZU IHRER HERSTELLUNG
EP - 22.12.2021
Clasificación Internacional A61P 31/16 Nº de solicitud 20708683 Solicitante SERUM INST OF INDIA PVT LTD Inventor/a DHERE RAJEEV MHALASAKANT
The present disclosure provides compositions and methods for manufacturing and obtaining a live attenuated Influenza vaccine (LAIV) composition that can be delivered intranasally to provide protection against influenza virus infection. Said LAIV strains are based on cold adapted, temperature sensitive and attenuated phenotypes of master donor viruses (MDVs) containing the surface glycoprotein genes of the wild type pandemic or seasonal influenza strains. Also, said LAIV strains are further adapted to grow in MDCK cells (Madin Darby canine kidney cells). The use of eggs is avoided in large scale vaccine manufacturing. The purification process is devoid of chromatography steps. The said LAIV composition includes one or more live attenuated influenza vaccine virus and is devoid of polymers and surfactants.

6.WO/2021/255221SWINE INFLUENZA A VIRUS VACCINE COMPRISING A NUCLEIC ACID CONSTRUCT ENCODING ANTIGENS OF SPECIFIC VIRUS LINEAGES
WO - 23.12.2021
Clasificación Internacional C07K 14/11 Nº de solicitud PCT/EP2021/066548 Solicitante INTERVET INTERNATIONAL B.V. Inventor/a MOGLER, Mark, A
The present invention relates to a nucleic acid construct that encodes a first Swine influenza A (IAV- S) hemagglutinin (HA) antigen of the Scot/94 lineage from strain A/swine/Italy/3033-1/2015 (H1N2) or an amino acid sequence having at least 85% sequence identity thereof and a second Swine influenza A (IAV-S) hemagglutinin (HA) antigen of the Eurasian avian-like (EA) lineage from strain A/swine/Italy/28762-3/2013 (H1N1) or an amino acid sequence having at least 90% sequence identity thereof, and a nucleic acid construct that encodes a first IAV-S HA antigen of the Gent/84 lineage from strain A/swine/Italy/240849/2015 (H3N2) or an amino acid sequence having at least 95% sequence identity thereof and a second IAV-S HA antigen of pandemic09 (pdm09) lineage from strain A/swine/England/373/2010 (H1N1) or an amino acid sequence having at least 95% sequence identity thereof. In other embodiments, the present invention relates to RNA replicon particles comprising one or both nucleic acid constructs, an immunogenic composition, such as a vaccine, which may be used against influenza A virus infection, and comprising the replicon particles. Further provided are methods of making the vaccine and use of the vaccine.

7.WO/2021/253613VACCINE SPRAYING EQUIPMENT

WO - 23.12.2021
Clasificación Internacional A61D 7/00 Nº de solicitud PCT/CN2020/109688 Solicitante FOSHAN STANDARD BIO-TECH CO., LTD. Inventor/a TAN, Zhijian
Vaccine spraying equipment, comprising: a machine frame (1); a conveying apparatus, provided on the machine frame (1) and configured to support and convey a chicken vaccine frame (100); a spraying apparatus (3), provided on the machine frame (1) and comprising two rows of sprinklers (31) provided perpendicular to the conveying direction of the conveying apparatus, the two rows of sprinklers (31) being provided in parallel above the conveying apparatus; and two suspension supplying apparatus, provided on the machine frame (1), the two suspension supplying apparatus respectively being in communication one-to-one with the two rows of sprinklers (31), and each of the suspension supplying apparatus being configured to supply a vaccine suspension to the spraying apparatus (3).

8.WO/2021/255219SWINE INFLUENZA A VIRUS VACCINE COMPRISING A NUCLEIC ACID CONSTRUCT HAVING A SPECIFIC ORDER OF GENES
WO - 23.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/066546 Solicitante INTERVET INTERNATIONAL B.V. Inventor/a MOGLER, Mark, A
The present invention relates to a nucleic acid construct that encodes, in this order, a first Swine influenza A (IAV-S) hemagglutinin (HA) antigen of the Scot/94 lineage and a second Swine influenza A (IAV-S) hemagglutinin (HA) antigen of the Eurasian avian-like (EA) lineage, and a nucleic acid construct that encodes, in this order, a first IAV-S HA antigen of the Gent/84 lineage and a second IAV-S HA antigen of pandemic09 (pdm09) lineage. In other embodiments, the present invention relates to RNA replicon particles comprising one or both nucleic acid constructs, an immunogenic composition, such as a vaccine, which may be used against influenza A virus infections, and comprising the replicon particles. Further provided are methods of making the vaccine and use of the vaccine.

9.3923967REKOMBINANTES VACCINIA-VIRUS UND VERWENDUNG DAVON
EP - 22.12.2021
Clasificación Internacional A61K 35/76 Nº de solicitud 20707823 Solicitante IGNITE IMMUNOTHERAPY INC Inventor/a KIRN DAVID H
The present disclosure provides a replication-competent, recombinant oncolytic vaccinia virus, compositions comprising the vaccinia virus, and use of the vaccinia virus or composition for inducing oncolysis in an individual having a tumor.

10.20210388366PLANT-PRODUCED CHIMAERIC ORBIVIRUS VLPS
US - 16.12.2021
Clasificación Internacional C12N 15/82 Nº de solicitud 17335404 Solicitante CSIR Inventor/a Albertha René VAN ZYL
This invention relates to a second generation, plant-produced synthetic *Orbivirus* candidate vaccine. The vaccine comprises a plant produced chimaeric *Orbivirus* virus like particle (VLP) comprising at least one structural protein from one *Orbivirus* serotype and at least one structural protein selected from another serotype of the *Orbivirus,* wherein both structural capsid proteins are from the same *Orbivirus* species. In particular the invention relates to a vaccine against an *Orbivirus,* a method of producing chimaeric *Orbivirus* virus-like particles (VLPs) for use in a method of prevention and/or treatment of an *Orbivirus* infection, the use of the chimaeric *Orbivirus* VLPs in the manufacture of a vaccine for an *Orbivirus,* and a method of preventing and/or treating an *Orbivirus* infection.

11.WO/2021/251384FUSION PROTEIN OF PENTAMER AND GB OF CYTOMEGALOVIRUS, AND VACCINE CONTAINING SAID FUSION PROTEIN
WO - 16.12.2021

Clasificación Internacional C12N 15/62 Nº de solicitud PCT/JP2021/021752 Solicitante KM BIOLOGICS CO., LTD. Inventor/a TORIKAI Masaharu
The purpose of the present invention is to provide an effective vaccine that can prevent and treat a cytomegalovirus (CMV) infection. A fusion protein according to the present invention is a fusion protein of a pentamer and an envelope glycoprotein B (gB protein) of CMV. A vaccine for preventing or treating a CMV infection according to the present invention is a subunit vaccine including, as an antigen, a fusion protein of a pentamer and a gB protein of CMV.

12.20210393768COMPOSITIONS AND METHODS FOR PREVENTING AND TREATING VIRUS INFECTION
US - 23.12.2021
Clasificación Internacional A61K 39/125 Nº de solicitud 17272199 Solicitante University of Virginia Patent Foundation Inventor/a Steven L. Zeichner
Disclosed herein are bacteria-based HIV MPER vaccine candidates, as well as bacteria-based candidates for other viruses and for bacteria. The HIV vaccine candidates express MPER-derived antigens on their surfaces using Gram autotransporters. The surface-expressed MPER antigens bind several different MPER-directed anti-HIV Broadly Neutralizing Monoclonal Antibodies. When the bacteria expressing the MPER-derived antigens on their surfaces are used to immunize mice they elicit the production of sera and vaginal wash material that bind the bacteria expressing the MPER antigens. At least one of the bacteria expressing MPER-derived antigens on their surfaces elicits the production of sera with anti-HIV neutralizing activity. Killed whole cell and live *Salmonella* expressing the MPER derived antigens on their surfaces constitute new approaches to HIV vaccine develop that is plausible and that could ultimately yield an inexpensive, globally appropriate candidate vaccine that could be rapidly produced and deployed largely using currently available technology.

13.WO/2021/255222SWINE INFLUENZA A VIRUS VACCINE COMPRISING TWO DISTINCT RNA REPLICON PARTICLES
WO - 23.12.2021
Clasificación Internacional A61K 39/145 Nº de solicitud PCT/EP2021/066550 Solicitante INTERVET INTERNATIONAL B.V. Inventor/a MOGLER, Mark, A.
The present invention relates to an immunogenic composition comprising first and second RNA replicon particles. The first RNA replicon particle comprises a nucleic acid construct comprising first and second nucleic acid sequences encoding first and second hemagglutinin (HA) antigens of a Swine influenza A virus (IAV-S). The first HA antigen is a of the A/swine/Gent/1/1984-like H3N2 (Gent/84) lineage, and the second HA antigen is of the A(H1N1)pdm09 (pdm09) lineage. The second RNA replicon particle comprises a nucleic acid construct comprising third and fourth nucleic acid sequences encoding third and fourth HA antigens of IAV-S. The third HA antigen is of the A/swine/Scotland/410440/1994-like H1huN2 (Scot/94) lineage, and the fourth HA antigen is of the Eurasian avian-like H1avN1 (EA) lineage. In other embodiments, the present invention relates to a vaccine, which may be used against influenza A virus infection, and comprising the immunogenic composition. Further provided are methods of making the vaccine and use of the vaccine.

14.WO/2021/249011HIV VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 14/78 Nº de solicitud PCT/CN2021/087054 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
The present invention discloses immunogenic compositions including recombinant peptides and proteins comprising human immunodeficiency viruses (HIV) antigens and immunogens, e.g., gp 120 protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising

a soluble HIV viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing an HIV infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

15.WO/2021/249116CORONAVIRUS VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2021/093895 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
Provided are recombinant peptides and proteins which comprise coronavirus viral antigens and immunogens, e.g., coronavirus S protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising a soluble coronavirus viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing a coronavirus infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

16.WO/2021/249455HIV VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 14/78 Nº de solicitud PCT/CN2021/099292 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
The present invention discloses immunogenic compositions including recombinant peptides and proteins comprising human immunodeficiency viruses (HIV) antigens and immunogens, e.g., gp 120 protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising a soluble HIV viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing an HIV infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

17.WO/2021/254270METHOD FOR INDUCING NEUTRALIZING ANTIBODY BASED ON CELL MEMBRANE TO DISPLAY CORONAVIRUS IMMUNOGEN
WO - 23.12.2021
Clasificación Internacional C12N 5/07 Nº de solicitud PCT/CN2021/099724 Solicitante SHANGHAI PUBLIC HEALTH CLINICAL CENTER Inventor/a XU, Jianqing
Disclosed is a method for inducing a neutralizing antibody based on a cell membrane to display a coronavirus immunogen. Specifically, provided are a cell that displays novel coronavirus SARS-CoV-2 spike protein S on the cell membrane surface thereof, a vaccine or a vaccine combination against novel coronavirus SARS-CoV-2 containing the cell, the use of the cell in the preparation of a vaccine for preventing or treating the novel coronavirus SARS-CoV-2, and a preparation method therefor. The cells and vaccines can efficiently activate B cells in vivo, induce neutralizing antibody responses, and have a wide application prospect in preventing and reducing novel coronavirus infection.

18.WO/2021/249451CORONAVIRUS VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2021/099285 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
Provided are immunogenic compositions including recombinant peptides and proteins comprising coronavirus viral antigens and immunogens, e.g., coronavirus S protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising a soluble coronavirus viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing a coronavirus infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

19.WO/2021/250219A RECOMBINANT MODIFIED VACCINIA VIRUS ANKARA (MVA) VACCINE AGAINST CORONAVIRUS DISEASE
WO - 16.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/065726 Solicitante BAVARIAN NORDIC A/S Inventor/a HAUSMANN, Jürgen
The invention relates to a recombinant Modified Vaccinia Virus Ankara (MVA) encoding a spike (S) protein or a part thereof, such as a receptor-binding domain (RBD), and additional antigenic sequences derived from other proteins of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), the causative agent of coronavirus disease 19 (COVID-19).

20.WO/2021/252604CORONAVIRUS DISEASE 2019 (COVID-19) COMBINATION VACCINE
WO - 16.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/036578 Solicitante THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY Inventor/a WEINER, David
Disclosed herein is a vaccine comprising a Coronavirus disease 2019 (COVID-19) antigen in a combination with an immunoglobulin from post-exposure treatment. The antigen can be a consensus antigen. The consensus antigen can be a consensus spike antigen. Also disclosed herein is a method of treating a subject in need thereof, by administering the vaccine to the subject.

21.WO/2021/259397COMPOSICIONES VACUNALES BASADAS EN NANO-PARTICULAS INORGANICAS PARA EL TRATAMIENTO DEL CÁNCER
WO - 30.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/CU2021/050005 Solicitante CENTRO DE INMUNOLOGÍA MOLECULAR Inventor/a GONZÁLEZ RUIZ, Gustavo
La presente invención se relaciona con la biotecnología y específicamente con el campo de la salud humana. Proporciona nuevas composiciones vacunales que comprende como principio activo un sistema que contiene al EGF humano recombinante, o péptidos de este y una proteína o péptido transportador, unidas a un núcleo constituido por nano-partículas inorgánicas, con dimensiones en escala nano o submicrométrica. Estas composiciones vacunales son útiles para el tratamiento crónico del cáncer y tienen como ventaja que no tienen efectos adversos en el sitio de la inyección y no se acumulan en el organismo.

22.WO/2021/249009RSV VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021

Clasificación Internacional A61K 39/155 Nº de solicitud PCT/CN2021/087045 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
The present discloses immunogenic compositions including recombinant peptides and proteins comprising respiratory syncytial virus (RSV) viral antigens and immunogens, e.g., RSV F protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising a soluble RSV viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing an RSV infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

23.WO/2021/250299QUIMERA SINTÉTICA MULTIEPITÓPICA COMO VACUNA Y TRATAMIENTO FRENTE A LEISHMANIOSIS EN MAMÍFEROS
WO - 16.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/ES2021/070377 Solicitante UNIVERSIDAD COMPLUTENSE DE MADRID Inventor/a MARTÍNEZ RODRIGO, Abel
Quimera sintética multiepitópica como vacuna y tratamiento frente a leishmaniosis en mamíferos. Quimera sintética que incluyen 4 péptidos multiepitópicos frente a Leishmania. Cada uno de los péptidos se ha seleccionado de una proteína de Leishmania infantum. Se trata de las histonas nucleosomales H2A, H2B, H3 y H4. La invención también se refiere a una composición farmacéutica que incluye la quimera sintética. También se refiere a una vacuna profiláctica y/o terapéutica frente a Leishmania spp para su uso en mamíferos y, especialmente, en humanos y en perros.

24.WO/2021/252954INACTIVATION OF GENOME ENVELOPED WITHIN CORONAVIRUS SPHERICAL OR PLEOMORPHIC PARTICLES OR SHELLS TO FORM A VACCINE
WO - 16.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/037090 Solicitante SCHOSSAU, Tom M. Inventor/a SCHOSSAU, Tom M.
Vaccine based on ethanol inactivated pathogens, or part thereof, are described herein. Also disclosed are certain vaccines for treating COVID-19 or other coronavirus related diseases is created by deactivating the genome, genetic material or RNA encapsulated within the shell of virus without eliminating the spikes or spike protein, which both attaches the virus to a host cell and is detected by the body to produce antibodies. Treatment of an active coronavirus with a material such as an effective amount of ethanol will both penetrate the shell and deactivate the genetic material which causes the disease, for preparation of a vaccine.

25.WO/2021/254054VACCINE FOR PREVENTING DISEASE CAUSED BY CORONAVIRUS
WO - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/093756 Solicitante ACADEMAY OF MILITARY MEDICAL SCIENCES, AMS, PLA Inventor/a LIU, Bo
Disclosed in the present invention is a vaccine for preventing a disease caused by a coronavirus. The present invention provides the vaccine for preventing a disease (COVID-19) caused by the coronavirus, containing a glycosylated coronavirus S protein receptor binding domain, an aluminum hydroxide adjuvant, and a CpG adjuvant.

26.WO/2021/249013VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021

Clasificación Internacional C07K 14/11 Nº de solicitud PCT/CN2021/087074 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
The present disclosure relates in some aspects to immunogenic compositions including recombinant peptides and proteins comprising influenza virus viral antigens and immunogens, e.g., influenza HA protein peptides. In some aspects, the immunogenic composition comprises a secreted fusion protein comprising a soluble influenza viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. In some aspects, the immunogenic compositions provided herein are useful for generating an immune response, e.g., for treating or preventing an influenza infection. In some aspects, the immunogenic compositions provided herein may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

27.3923979MIT AUTOLOGEM TUMOR ASSOZIIERTE EXTRACHROMOSOMALE ZIRKULÄRE DNA ZUR VERWENDUNG ALS THERAPEUTISCHER IMPFSTOFF
EP - 22.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 20712414 Solicitante RJAN HOLDING AB Inventor/a NILSSON JONAS
Autologous cancer tumour associated extrachromosomal circular DNA (ecDNA) for use as a therapeutic vaccine against the cancer, and methods for preparing an autologous therapeutic vaccine.

28.782758ANTI-ABETA VACCINE THERAPY
NZ - 24.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 782758 Solicitante AC IMMUNE SA Inventor/a MUHS, Andreas
A liposomal vaccine composition comprising: a. A β-amyloid (Aβ)-derived peptide antigen displayed on the surface of the liposome that comprises, consists essentially of or consists of amino acids 1-15 of Aβ, b. An adjuvant comprising monophosphoryl lipid A (MPLA) is used for inducing an anti-Aβ immune response in a human subject without inducing a serious adverse event. The β-amyloid (Aβ)-derived peptide antigen (SEQ ID NO: 1) is administered in an amount of 300-2000 µg, preferably around 1000 µg. The MPLA is administered in an amount of 15-600 µg, preferably around 175 µg. The liposomal vaccine composition is administered intramuscularly or subcutaneously.

29.WO/2021/261635NOVEL IMMUNOSTIMULANT AND VACCINE COMPOSITION COMPRISING SAME
WO - 30.12.2021
Clasificación Internacional A61K 39/39 Nº de solicitud PCT/KR2020/008364 Solicitante REPUBLIC OF KOREA(ANIMAL AND PLANT QUARANTINE AGENCY) Inventor/a LEE, Minja
The present inventors found that pigs exhibit more innate immune responses and a more intensive T cell exhaustion pathway and thus are less likely to form adaptive and humoral immune responses than cattle. We suggested an innovative strategy for improving abnormal immune responses in pigs by simultaneously inducing potent cellular and humoral immune responses and employing a T cell effector as a novel vaccine adjuvant. This result can provide an important clue for understanding a difference in immune response between cattle and pigs and suggests a method for maximizing the immune response and vaccine efficacy lower in pigs than cattle.

30.WO/2021/262625S-LAYER VACCINE FUSION PROTEINS AND METHODS OF USE
WO - 30.12.2021
Clasificación Internacional G01N 33/566 Nº de solicitud PCT/US2021/038337 Solicitante AVALON GLOBOCARE CORP. Inventor/a SLEYTR, Uwe

Described are S-layer fusion proteins comprising a self-assembling domain of a S- layer protein and a viral spike protein or a fragment thereof, a pharmaceutical composition (such as a vaccine) comprising the S-layer fusion protein, and method of immunizing a patient in need thereof comprising administering the vaccine.

31.WO/2021/253962NOVEL CORONAVIRUS VACCINE CANDIDATE STRAIN USING RECOMBINANT NEWCASTLE DISEASE VIRUS AS VECTOR, CONSTRUCTION METHOD THEREFOR, AND APPLICATION THEREOF
WO - 23.12.2021
Clasificación Internacional C12N 7/01 Nº de solicitud PCT/CN2021/087976 Solicitante ZHEJIANG DIFFERENCE BIOLOGICAL TECHNOLOGY CO., LTD Inventor/a SONG, Jiasheng
Provided are a novel coronavirus vaccine candidate strain using a recombinant Newcastle disease virus as a vector, a construction method therefor, and an application thereof, pertaining to the technical field of genetically-engineered vaccines. The vaccine candidate strain uses a Newcastle disease virus LaSota strain as a vector. A novel coronavirus S gene with a mutation (C3756T, BamHI site removed) is inserted between the P gene and the M gene of the Newcastle disease virus LaSota strain. The nucleotide sequence of the mutant novel coronavirus S gene is as shown in SEQ ID NO. 1.

32.WO/2021/260065MVA-BASED VACCINE AGAINST COVID-19 EXPRESSING SARS-COV-2 ANTIGENS
WO - 30.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/067245 Solicitante CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS (CSIC) Inventor/a GARCÍA ARRIAZA, Juan Francisco
The present invention is directed to a recombinant modified vaccinia virus Ankara (MVA), which carries one or more nucleic acid sequence/s coding for an antigenic protein of SARS-CoV-2 useful for vaccinating against COVID19. The present invention is further directed to a vaccine composition containing said recombinant MVA as well as to a method for enhancing T cell and humoral immune responses in a mammal against COVID19.

33.20210386660ORAL DISPERSIBLE VACCINE COMPRISING VIROSOMES
US - 16.12.2021
Clasificación Internacional A61K 9/00 Nº de solicitud 17409050 Solicitante Catalent U.K. Swindon Zydis Limited Inventor/a Yik Teng WONG
The present disclosure is directed to oral vaccine dosage forms and processes for producing the oral vaccine dosage forms. The dosage forms include lipid-based vesicles (e.g., virosomes, liposomes) harboring an immunogenic amount of at least one vaccinal target molecule, with or without adjuvant. Specifically, Applicants discovered a combination of the composition of the liquid virosome concentrates, the composition of the base matrix for the solid dosage form formulation (excluding the virosome concentrate), and the manufacturing conditions for the dosage forms that can produce a freeze dried sublingual dosage form having physical robustness, particle and antigen integrity and stability.

34.WO/2021/249452RSV VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional A61K 39/155 Nº de solicitud PCT/CN2021/099286 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
Provided are immunogenic compositions including recombinant peptides and proteins comprising respiratory syncytial virus (RSV) viral antigens and immunogens, e.g., RSV F protein peptides. The immunogenic composition comprises a secreted fusion protein comprising a soluble RSV viral antigen joined by in-frame a disulfide bond-linked trimeric fusion protein. The immunogenic compositions are

useful for generating an immune response, e.g., for treating or preventing an RSV infection. The immunogenic compositions may be used in a vaccine composition, e.g., as part of a prophylactic and/or therapeutic vaccine. Also provided herein are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

35.WO/2021/254327ENVELOPE REPLACEMENT-TYPE VIRAL VECTOR VACCINE AND CONSTRUCTION METHOD THEREFOR
WO - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2021/100107 Solicitante FANTASIA BIOPHARMA (ZHEJIANG) CO. LTD Inventor/a QIN, Frank XiaoFeng
Disclosed is an envelope replacement-type viral vector vaccine. The Vesicular stomatitis virus VSV is used as a vector, and the GP gene in the VSV virus genome is replaced with a truncated segment of a spike protein S gene of a coronavirus or a fused ECD-CA of an extracellular segment and a GP-C segment of the spike protein S gene of the coronavirus. The truncated segment of the spike protein S gene is selected from genes with some amino acid deletions at the C-terminus, and the ECD-CA is a gene formed by means of fusing the extracellular segment of the spike protein S gene of the coronavirus with the transmembrane and intracellular segment genes of the VSV viral envelope protein. Also disclosed is a method for constructing the envelope replacement-type viral vector vaccine.

36.20210386856COMBINATION THERAPY WITH NEOANTIGEN VACCINE
US - 16.12.2021
Clasificación Internacional A61K 39/395 Nº de solicitud 17251285 Solicitante BIONTECH US INC. Inventor/a Robert Ang
The present invention relates to neoplasia vaccine or immunogenic composition administered in combination with other agents, such as checkpoint blockade inhibitors for the treatment or prevention of neoplasia in a subject

37.20210393773COMPOSITIONS COMPRISING BACTERIAL STRAINS
US - 23.12.2021
Clasificación Internacional A61K 39/39 Nº de solicitud 17245060 Solicitante 4D Pharma Research Limited Inventor/a Emma Elizabeth Clare Hennessy
The invention provides compositions comprising bacterial strains for use as a vaccine adjuvant; for use in treating, preventing or delaying immunosenescence; or for use in enhancing a cell therapy, such as CAR-T. The invention also provides vaccine compositions comprising bacterial strains and one or more antigens.

38.WO/2021/252581DECTIN-1 (CLEC7A) SINGLE NUCLEOTIDE POLYMORPHISM AS A BIOMARKER FOR PREDICTING ANTIBODY RESPONSE WHEN USING β-GLUCAN AS A VACCINE ADJUVANT
WO - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/US2021/036544 Solicitante MEMORIAL SLOAN KETTERING CANCER CENTER Inventor/a CHEUNG, Irene Y.
The present disclosure relates generally to methods for determining whether a patient will show an enhanced immunogenic response to vaccines when using β-glucan as a vaccine adjuvant. Kits for use in practicing the methods are also provided.

39.WO/2021/261444ADJUVANT WITH TLR4 AGONIST ACTIVITY
WO - 30.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/JP2021/023402 Solicitante SUMITOMO DAINIPPON PHARMA CO., LTD. Inventor/a BAN, Hitoshi

The present invention relates to a compound that is useful as a vaccine adjuvant, a method for producing the same, a pharmaceutical composition that contains the compound, and use of the compound as a vaccine adjuvant.

40.20210386849VLP-BASED BIVALENT EBOLA VACCINES AND METHODS OF MAKING AND USING SAME
US - 16.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud 17411097 Solicitante Children's Hospital Medical Center Inventor/a Karnail Singh
Disclosed herein are virus-like particle (VLP)-based bivalent vaccine compositions. The compositions may comprise a spherical retroviral Group-specific Antigen ("Gag") protein core and at least two Ebola glycoproteins. The at least two Ebola glycoproteins may be located at the exterior surface of the spherical Gag protein core, such that the VLP-based vaccine presents at least two Ebola glycoprotein antigens. In one aspect, the at least two Ebola glycoproteins are a *Zaire* (EBOV) glycoprotein, and a *Sudan* (SUDV) glycoprotein.

41.WO/2021/255288VACCINE
WO - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/EP2021/066720 Solicitante THE VACCINE GROUP LIMITED Inventor/a JARVIS, Michael
A recombinant BoHV-4 based vector expressing a SARS-CoV-2 gene.

42.WO/2021/260176SYNTHETIC EPITOPES OF BETACORONAVIRUSES
WO - 30.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/067487 Solicitante VIROMETIX AG Inventor/a SUMERAY, Anna, Kathleen
The present invention relates to fields of epitope vaccine design. In particular, it relates to a polypeptide comprising an amino acid sequence of SEQ ID NO: 1: X1SNNLDSKVGGNYNYX2YRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQX3YGFQPTNGV GYQPX4, wherein each of X1 to X4 is independently at least one amino acid, or a variant of SEQ ID NO: 1 or a fragment of SEQ ID NO: 1 or a fragment of the variant of SEQ ID NO: 1, and a nucleic acid molecule encoding the polypeptide of the invention. The invention further relates to a conjugate comprising (i) the polypeptide of the invention, (ii) a peptide moiety comprising at least one coiled coil peptide chain segment, and (iii) a lipid moiety. The invention further relates to a synthetic virus-like particle (sVLP) consisting of helical lipopeptide bundles comprising the conjugates of the invention, and its use as a vaccine against SARS-CoV and SARS-CoV-2 diseases and in preventing or treating SARS-CoV and SARS-CoV-2 diseases.

43.20210393766Recombinant Modified Vaccinia Virus Ankara (MVA) Foot and Mouth Disease Virus (FMDV) Vaccine
US - 23.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud 17460641 Solicitante Bavarian Nordic A/S Inventor/a Robin Steigerwald
The present invention relates to modified poxviral vectors and to methods of making and using the same. In particular, the invention relates to recombinant modified vaccinia virus Ankara-based (MVA-based) vaccine against FMDV infection and to related products, methods and uses. Specifically, the present invention relates to genetically engineered (recombinant) MVA vectors comprising at least one heterologous nucleotide sequence encoding an antigenic determinant of a FMDV protein. The invention also relates to products, methods and uses thereof, e.g., suitable to induce a protective immune response in a subject.

44.20210386843mRNA Vaccine
US - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17420556 Solicitante eTheRNA Immunotherapies NV Inventor/a Stefaan De Koker
The present invention in general relates to a combination of mRNA molecules encoding functional immunostimulatory proteins and a PD-1 pathway inhibitor. In particular, it relates to a combination of one or more mRNA molecules encoding at least one functional immunostimulatory protein selected from the list comprising: CD40L, CD70 and caTLR4; and a PD-1 pathway inhibitor, optionally also in the form of an mRNA molecule. The present invention further relates to vaccines comprising such combination, as well as uses of the combinations and vaccine of the present invention in human or veterinary medicine, in particular in the prevention and/or treatment of cell proliferative disorders.

45.WO/2021/251975ALLOGENEIC TUMOR CELL VACCINE
WO - 16.12.2021
Clasificación Internacional A61P 35/00 Nº de solicitud PCT/US2020/037283 Solicitante ALLOPLEX BIOTHERAPEUTICS Inventor/a BORRIELLO, Frank
The described invention provides allogeneic tumor cell vaccines comprising tumor cell lines or tumor cell line variants that are genetically engineered to express a core group of three immunomodulatory molecules, and optionally additional R immunomodulatory polypeptides for induction of one or more subpopulations of PBMCs to proliferate in response to the expressed immunomodulatory molecules and to then enter an effector phase for killing of tumor cells. According to some embodiments, the tumor cell vaccine candidate can induce an immune response in the recipient cancer patient that cross reacts with the patient's own (autologous) tumor cells, the effects of which are sufficient to result in enhanced anti-tumor immunity contributing to the increased survival of a vaccinated patient cohort compared to a matched unvaccinated patient cohort.

46.WO/2021/251453NUCLEIC ACID LIPID PARTICLE VACCINE
WO - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/JP2021/022057 Solicitante DAIICHI SANKYO COMPANY, LIMITED Inventor/a KAWAOKA, Yoshihiro
Provided is a vaccine for preventing and/or treating infection caused by the novel coronavirus (severe acute respiratory syndrome coronavirus 2: SARS-CoV-2). The lipid particles encapsulate a nucleic acid capable of expressing the S protein of the novel coronavirus (severe acute respiratory syndrome coronavirus 2: SARS-CoV-2) and/or a fragment thereof. The lipid contains a cationic lipid represented by general formula (Ia) or a pharmaceutically acceptable salt thereof. In the formula, R1 and R2 independently indicate a C1–C3 alkyl group; L1 indicates a C17–C19 alkenyl group that may contain one or a plurality of C2–C4 alkanoyloxy groups; L2 indicates a C10–C19 alkyl group that may contain one or a plurality of C2–C4 alkanoyloxy groups or a C10–C19 alkenyl group that may contain one or a plurality of C2–C4 alkanoyloxy groups; and p is 3 or 4.

47.WO/2021/259206DNA VACCINE FOR SARS-COV-2 VIRUS AND USE THEREOF
WO - 30.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2021/101269 Solicitante ALEX (BEIJING) BIOTECHNOLOGY CO., LTD Inventor/a WU, John
The present invention belongs to the field of vaccines. Provided is a DNA vaccine specific to the SARS-COV-2 virus. Disclosed are a fusion protein containing the amino acid sequence of positions 14-1294 in SEQ ID NO: 10 or a mature polypeptide encoded by SEQ ID NO: 9; a fusion protein containing the amino acid sequence of positions 14-1094 in SEQ ID NO: 12 or a mature polypeptide encoded by SEQ ID NO:

11; and a polynucleotide encoding the fusion protein or a nucleic acid molecule containing a polynucleotide sequence. Further disclosed are a related composition, a method, a use and a kit.

48.20210393769CORONAVIRUS VACCINE AND METHODS OF USE THEREOF
US - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud 17341928 Solicitante Davinder Gill Inventor/a Davinder Gill
An immunogenic composition effective for eliciting an immune response against cells that present coronavirus S protein and/or coronavirus M protein derived antigens on a virus-like-particle (VLP) system. In a method embodiment, the antigen presenting VLP is administered to a mammal, such as a human, to elicit an immune response against coronavirus S protein and/or coronavirus M protein. A preferred method embodiment may include at least one additional dose of immunogenic composition to enhance the immune response effectiveness of the coronavirus vaccine.

49.WO/2021/249454VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 14/11 Nº de solicitud PCT/CN2021/099291 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
Provided are immunogenic compositions comprising a secreted fusion protein, wherein the secreted fusion protein comprises a soluble influenza or rabies viral antigen joined by in-frame fusion to a C-terminal portion of a collagen which is capable of self-trimerization to form a disulfide bond-linked trimeric fusion protein. Also provided are uses of the immunogenic compositions for generating an immune response against influenza or rabies infection and in a vaccine composition. Also provided are methods for producing the recombinant peptides and proteins, prophylactic, therapeutic, and/or diagnostic methods, and related kits.

50.WO/2021/257884VACCINES, VACCINE PRIMING, AND ANTIGEN DOSE SPARING
WO - 23.12.2021
Clasificación Internacional A61K 31/715 Nº de solicitud PCT/US2021/037907 Solicitante ADJUVANCE TECHNOLOGIES, INC. Inventor/a MARTIN, J., Tyler
The present application relates to new vaccines, improved vaccine priming, and antigen dose sparing in connection with triterpene glycoside saponin-derived adjuvants, salt forms thereof, and pharmaceutical compositions, as well as related methods.

51.WO/2021/262672SARS-COV-2 RBD CONSTRUCTS
WO - 30.12.2021
Clasificación Internacional C12N 15/09 Nº de solicitud PCT/US2021/038411 Solicitante THE SCRIPPS REASEARCH INSTITUTE Inventor/a SCHIEF, William
The present invention relates to glycan-masked and membrane-tethered SARS-CoV-2 RBD vaccine constructs and methods for making and administering the same. The present invention also encompasses a general vaccine platform for coronaviruses.

52.WO/2021/252450PHAGE DISPLAY VACCINE FOR COVID-19 USING A NOVEL PEPTIDE SEQUENCE
WO - 16.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/036342 Solicitante ADAPTIVE PHAGE THERAPEUTICS, INC. Inventor/a MERRIL, Carl
Vaccines directed to the SARS-CoV-2 antigen, methods of administering and/or treating a subject (including prophylactic treatment) infected and/or at risk of being infected with SARS-CoV-2. A transdermal membrane comprising a non-infectious icosahedral phage vaccine displaying a SARS-CoV-2

antigen is described wherein the membrane is stable at room temperature for greater than 3 months and uses thereof to vaccinate a subject against the SARS-CoV-2 antigen.

53.WO/2021/255225SWINE INFLUENZA A VIRUS VACCINE COMPRISING A NUCLEIC ACID CONSTRUCT COMPRISING FIRST, SECOND AND THIRD NUCLEIC ACID SEQUENCES ENCODING DISTINCT NEURAMINIDASE ANTIGENS OF THE VIRUS
WO - 23.12.2021
Clasificación Internacional C07K 14/11 Nº de solicitud PCT/EP2021/066555 Solicitante INTERVET INTERNATIONAL B.V. Inventor/a MOGLER, Mark, A
The present invention relates to a nucleic acid construct comprising first, second and third nucleic acid sequences encoding first, second and third neuraminidase (NA) antigens of a Swine influenza A virus (IAV-S). The first NA antigen is of the A/swine/Scotland/410440/1994-like H1huN2 (Scot/94) lineage, the second NA antigen is of the A/swine/Gent/1/1984-like H3N2 (Gent/84) lineage, and the third NA antigen is selected from the A(H1N1)pdm09 (pdm09) lineage or the Eurasian avian-like H1avN1 (EA) lineage. In other embodiments, the present invention relates to RNA replicon particles comprising the nucleic acid construct, an immunogenic composition, such as a vaccine, which may be used against influenza A virus infection, and comprising the replicon particles.

54.3923983CHIMÄRE RSV- UND HMPV-F-PROTEINE, IMMUNOGENE ZUSAMMENSETZUNGEN UND VERWENDUNGSVERFAHREN
EP - 22.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud 20755020 Solicitante UNIV EMORY Inventor/a MOORE MARTIN L
This disclosure relates to a chimeric respiratory syncytial virus encoding a chimeric RSV and hMPV F protein and uses of the chimeric virus or components therein in a vaccine. In certain embodiments, this disclosure relates to a live attenuated vaccine comprising an RSV backbone substituting the F proteins of RSV, for a chimeric RSV and hMPV F protein.

55.WO/2021/263081BREAST CANCER VACCINE
WO - 30.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/US2021/039046 Solicitante NATIONAL BREAST CANCER COALITION Inventor/a KNUTSON, Keith L.
The invention relates to vaccines for breast cancer therapy. The invention also relates to methods of preventing and treating breast cancer using a breast cancer vaccine.

56.20210393754PERSONALIZED IMMUNOTHERAPY AGAINST SEVERAL NEURONAL AND BRAIN TUMORS
US - 23.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17390584 Solicitante Immatics Biotechnologies GmbH Inventor/a Sabrina KUTTRUFF-COQUI
The present invention relates to peptides, 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 cytotoxic T cell (CTL) peptide epitopes, alone or in combination with other tumor-associated peptides that serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses. The present invention relates to peptide sequences and their variants derived from HLA class I and class II molecules of human tumor cells that can be used in vaccine compositions for eliciting anti-tumor immune responses.

57.WO/2021/253147METHOD FOR PREPARING CELL-MEDIATED SARS-COV-2 VACCINES
WO - 23.12.2021

Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2020/096030 Solicitante YIN, Xiushan Inventor/a YIN, Xiushan
Provided are a cell-mediated SARS-COV-2 vaccine and a preparation method therefor, the steps therefor comprising: the construction of a SARS-COV-2 specific antigen carrier presented by stem cells, and the modification and assembly with the stem cells. Two weeks after mouse immunization, approximately 50% of the mice have in vivo antibodies that show a strong positive expression, and the most significant of which being an N-gene modified stem cell vaccine.

58.WO/2021/252777MICROENCAPSULATED ORAL STERNE VACCINE
WO - 16.12.2021
Clasificación Internacional A16K 9/16 Nº de solicitud PCT/US2021/036834 Solicitante THE TEXAS A&M UNIVERSITY SYSTEM Inventor/a FELIX, Jamie, B.
Methods and compositions for the immunization of animals and humans using an oral immunization or vaccine that comprises B. anthracis Sterne strain 34F2 spores suspended in alginate and coated with a shell containing poly-L-lysine (PEL), a vitelline protein B (VpB), or both and an external coating of alginate in an amount sufficient to protect an animal or human from a lethal dose of anthrax.

59.2021282438Nucleic acid molecule vaccine compositions and uses thereof
AU - 23.12.2021
Clasificación Internacional Nº de solicitud 2021282438 Solicitante Tapimmune Inc. Inventor/a
The present disclosure relates to nucleic acid vaccine compositions and methods for preventing or treating pathological conditions, such as cancer or infectious disease. Further, the disclosure provides methods for more efficient production of antigens via mRNA containing one or more non-conventional start codons to promote multiplex initiation of translation in eukaryotic cells.

60.WO/2021/253172METHOD FOR INDUCING ANTI-NOVEL CORONAVIRUS NEUTRALIZING ANTIBODY USING RECEPTOR RECOGNITION DOMAIN
WO - 23.12.2021
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2020/096148 Solicitante SHANGHAI PUBLIC HEALTH CLINICAL CENTER Inventor/a XU, Jianqing
A method for inducing an anti-novel coronavirus neutralizing antibody using a receptor recognition domain is provided. Specifically, an immunogenic peptide for novel coronavirus SARS-CoV-2 is provided, comprising an RBD region of SARS-CoV-2 virus spike protein S or a cysteine-modified RBD region, and encoding a nucleotide molecule, a vector containing the nucleotide molecule, and a host cell. A vaccine for novel coronavirus SARS-CoV-2, preparation and application thereof are also provided. The vaccine is safe, can continuously produce high-potency neutralizing antibodies, and can be used in the prevention and/or treatment of novel coronavirus infections and symptoms thereof.

61.783167COMPOSITIONS AND METHODS OF MANUFACTURING TRIVALENT FILOVIRUS VACCINES
NZ - 24.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 783167 Solicitante SOLIGENIX, INC. Inventor/a DONINI, Oreola
Disclosed is a stable immunogenic composition capable of eliciting a robust and durable immune response, comprising at least one antigen consisting of a filovirus glycoprotein and at least one nano-emulsion adjuvant which are co-lyophilized and can be reconstituted immediately prior to use. Also disclosed is a vaccine composition comprising at least two antigens, wherein each antigen is specific to a different genus of filovirus and which also comprises at least one nano-emulsion adjuvant.

62.WO/2021/253645HANSENULA ENGINEERED BACTERIUM EFFICIENTLY EXPRESSING CA10 VIRUS-LIKE PARTICLE AND USE THEREOF

WO - 23.12.2021
Clasificación Internacional C12N 1/19 Nº de solicitud PCT/CN2020/113181 Solicitante BEIJING MINHAI BIOTECHNOLOGY CO., LTD. Inventor/a LI, Guoshun
Provided are a Hansenula engineered bacterium efficiently expressing a CA10 virus-like particle and use thereof. Said engineered bacterium comprise a recombinant vector carrying CA10 virus P1 and a 3CD genes. An original strain of the engineered bacterium is uracil-deficient Hansenula AU-0501. The P1 and 3CD genes are optimized according to a Hansenula preferred codon. Further provided is a method for preparing a CA10 virus-like particle, comprising: culturing an engineered bacterium, expressing the CA10 virus-like particle, and separating and purifying the virus-like particle by using ultrafiltration and a three-step chromatography process. Also provided is a hand-foot-and-mouth disease vaccine.

63.WO/2021/256795EPITOPE OF NEW CORONAVIRUS AND USE THEREOF
WO - 23.12.2021
Clasificación Internacional C07K 14/00 Nº de solicitud PCT/KR2021/007379 Solicitante KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY Inventor/a SHIN, Eui-Cheol
The present invention discovers a T cell epitope for conserved region (CR) peptides which have well been conserved in beta coronavirus, which is known to cause an infection in humans. When used, the present invention can be utilized as a T cell vaccine capable of coping with even novel beta coronavirus against which conventional antibodies cannot take action due to mutations in the envelope protein of the virus.

64.WO/2021/257605COMPOSITIONS AND METHODS RELATING TO ANTIVIRAL THERAPEUTICS
WO - 23.12.2021
Clasificación Internacional A61K 35/42 Nº de solicitud PCT/US2021/037484 Solicitante NORTH CAROLINA STATE UNIVERSITY Inventor/a CHENG, Ke
The present disclosure provides compositions and methods related to antiviral therapeutics. In particular, the present disclosure provides novel compositions and methods for treating and/or preventing viral infections using vesicles derived from lung spheroid cells (LSCs). LSC-derived vesicles can be used as viral decoy nanoparticles for therapeutic applications, as virus-like particles (VLPs) for vaccine production, and as an antiviral drug delivery platform.

65.20210393772ADJUVANT AND VACCINE COMPOSITIONS
US - 23.12.2021
Clasificación Internacional A61K 39/39 Nº de solicitud 17219154 Solicitante Advanced BioAdjuvants LLC Inventor/a Jay D. Gerber

Methods are provided for preparing and delivering an adjuvant for vaccines including lecithin, polymer and one or more additives. The polymer is preferably polyacrylic acid-based. The additive is preferably one or more of a glycoside and a sterol. The method of preparation includes hydrating lecithin and a polymer in saline or water and mixing the lecithin and polymer to form the adjuvant. Additives can be included prior to or after hydration of the lecithin and polymer.

66.782825RNA CONSTRUCT
NZ - 24.12.2021
Clasificación Internacional C12N 15/86 Nº de solicitud 782825 Solicitante IMPERIAL COLLEGE INNOVATIONS LIMITED Inventor/a SHATTOCK, Robin
The invention relates to RNA constructs encoding (i) at least one therapeutic biomolecule; and (ii) at least one innate inhibitor protein (IIP). The constructs are RNA replicons and saRNA molecules, and the invention includes genetic constructs or vectors encoding such RNA replicons. The invention extends to the use of such RNA constructs and replicons in therapy, for example in treating diseases and/or in

vaccine delivery. The invention extends to pharmaceutical compositions comprising such RNA constructs, and methods and uses thereof.

67.783918SOLID DOSE FORMULATIONS FOR NEEDLE-FREE DELIVERY
NZ - 24.12.2021
Clasificación Internacional A61M 37/00 Nº de solicitud 783918 Solicitante ENESI PHARMA LIMITED Inventor/a GRANT, David Andrew
The present disclosure relates to solid dose formulations for needle-free delivery comprising 0.01 to 60 (w/w) of one or more therapeutic agent and/or prophylactic agent; and 40.0% to 99.99 % (w/w) of dextran. The invention further concerns methods of producing a solid dose formulation tablet and application its particular medical uses, in particular as a vaccine.

68.20210396759Method for Predicting Human Immune Response
US - 23.12.2021
Clasificación Internacional G01N 33/574 Nº de solicitud 17053934 Solicitante OBI PHARMA, INC. Inventor/a Cheng-Der Tony Yu
The present invention relates to a method for predicting human immune response to therapeutic cancer vaccine. This method includes a series of culturing procedures and a modified ELISPOT assay to detect total antibody, antigen specific antibody, and cytokine induction ability from human individual's PBMC.

69.WO/2021/262659FLAVIVIRUS SIGNAL PEPTIDES, VACCINE CONSTRUCTS, AND METHODS THEREFOR
WO - 30.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/038386 Solicitante UNIVERSITY OF CONNECTICUT Inventor/a VERARDI, Paulo Henrique
Disclosed herein are flavivirus signal peptide mutants useful for enhancing the production and secretion of flavivirus envelope (E) viral proteins or virus-like proteins. Also disclosed herein are methods of vaccinating subjects (e.g., human subjects) against a flavivirus comprising administering an expression vector, wherein the expression vector comprises a polynucleotide, and a fusion polypeptide comprising an engineered signal peptide and a flavivirus envelope (E) protein

70.20210393755NUCLEIC ACID COMPRISING OR CODING FOR A HISTONE STEM-LOOP AND A POLY(A) SEQUENCE OR A POLYADENYLATION SIGNAL FOR INCREASING THE EXPRESSION OF AN ENCODED TUMOUR ANTIGEN
US - 23.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17393253 Solicitante CureVac AG Inventor/a Andreas THESS
The present invention relates to a nucleic acid sequence, comprising or coding for a coding region, encoding at least one peptide or protein comprising a tumour antigen or a fragment, variant or derivative thereof, at least one histone stem-loop and a poly(A) sequence or a polyadenylation signal. Furthermore the present invention provides the use of the nucleic acid for increasing the expression of said encoded peptide or protein. It also discloses its use for the preparation of a pharmaceutical composition, especially a vaccine, e.g. for use in the treatment of cancer or tumour diseases. The present invention further describes a method for increasing the expression of a peptide or protein comprising a tumour antigen or a fragment, variant or derivative thereof, using the nucleic acid comprising or coding for a histone stem-loop and a poly(A) sequence or a polyadenylation signal.

71.WO/2021/255723MULTIFUNCTIONAL IMMUNOTHERAPEUTIC MONOCLONAL ANTIBODY COMPLEXES AND CONJUGATES
WO - 23.12.2021

Clasificación Internacional C07K 16/28 Nº de solicitud PCT/IL2021/050713 Solicitante SLAVIN, Shimon Inventor/a SLAVIN, Shimon
Immunotherapeutic Monoclonal Antibody Complexes or Conjugates (IMAC) comprising readily accessible antibodies designed and approved for clinical use are provided using a one- step method that combines killing of existing cancer cells in parallel with induction of long-lasting anti- cancer vaccination. Methods for their use, alone or in combination with cancer killer cells including intentionally mismatched donor T cells, NK cells concomitantly with additional anti-cancer or immune activating agents, or activation of patient's own immune system for personalized treatment of cancer and elimination of undesirable non-malignant cells are also provided. In addition, treatment method based on IMAC can be applied for in vivo vaccination against cancer using an existing malignant lesion as internal anti-cancer vaccine by engagement of patient's antigen presenting cells for induction of long-lasting anti-cancer vaccination in situ against residual or recurrent disease.

72.WO/2021/249441LUNG CANCER CELL STRAIN PAIR HAVING SAME GENETIC BACKGROUND AND DIFFERENT METASTATIC POTENTIALS, PREPARATION METHOD THEREFOR, AND USE THEREOF
WO - 16.12.2021
Clasificación Internacional C12N 5/09 Nº de solicitud PCT/CN2021/099216 Solicitante ZHOU, Qinghua Inventor/a ZHOU, Qinghua
A pair of lung cancer cell strains having a same genetic background and different metastatic potentials, a preparation method therefor, and a use thereof. The lung cancer cell strains are a human low metastatic large cell lung cancer cell strain and a human high metastatic large cell lung cancer cell strain; said strains are collected by the China General Microbiological Culture Collection Center, and are respectively cell strain ZQH-80 having collection number CGMCC No. 2832 and cell strain ZQH-81 having collection number CGMCC No. 2833. The lung cancer cell strains having a same genetic background and different metastatic potentials may serve as a cell model, and may also be transplanted into the body of an animal to construct an animal lung cancer model, which are used for researching and selecting a molecular target for a small molecule drug that combats lung cancer invasion and metastasis and organ-specific metastasis, developing a small molecule drug, a vaccine, or an antibody drug associated with treating lung cancer invasion and metastasis, and providing a technical platform for researching lung cancer invasion and/or metastasis. The present invention may further be used for gene target research of a gene related to lung cancer invasion and metastasis.

73.20210395368ANTI-PD-1 VACCINE COMPOSITION
US - 23.12.2021
Clasificación Internacional C07K 16/28 Nº de solicitud 16978953 Solicitante PEPTINOV SAS Inventor/a Lucille DESALLAIS
The present invention relates to a polypeptide which comprises or consists of—a first sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 55 to 67 of the PD-L1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-L1 protein; and/or—a second sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 85 to 101 of the PD-L1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-L1 protein; and/or—a third sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 111 to 127 of the PD-L1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-L1 protein; and/or—a fourth sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 138 to 156 of the PD-L1

protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-L1 protein; and/or—a fifth sequence consisting of at least 8 contiguous amino acid residues selected from within the sequence extending from amino acid residues 208 to 223 of the PD-L1 protein, and at most 30 contiguous amino acid residues selected from within the complete sequence of the PD-L1 protein.

74.20210386854Cell Line for Production of Marek's Disease Virus Vaccine and Methods of Making and Using the Same
US - 16.12.2021
Clasificación Internacional A61K 39/255 Nº de solicitud 17347075 Solicitante Zoetis Services LLC Inventor/a Keith Allen Ameiss
The present application relates to an avian cell line capable of supporting viral growth of Marek's Disease Virus (MDV), including Herpes Virus of Turkeys (HVT), methods of producing such cell lines, and therapeutic uses of the cell lines and resulting vaccines.

75.WO/2021/257510MEASLES VIRUS VACCINE EXPRESSING SARS-COV-2 PROTEIN(S)
WO - 23.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/US2021/037339 Solicitante UNIVERSITY OF PITTSBURGH - OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION Inventor/a DUPREX, William Paul
A recombinant measles viral vector comprising a nucleic acid sequence encoding a Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) spike glycoprotein is provided. Polypeptides comprising the SARS-CoV-2 spike glycoprotein also are provided, as well as related nucleic acids, vectors, and compositions. The polypeptides, nucleic acids, vectors, and compositions can be used in methods of preventing, inhibiting, reducing, eliminating, protecting, or delaying the onset of an infection or an infectious clinical condition caused by coronavirus and methods for inducing an immune response against a coronavirus.

76.WO/2021/259743VACCINE
WO - 30.12.2021
Clasificación Internacional A61K 39/108 Nº de solicitud PCT/EP2021/066343 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a CARRANZA SANDMEIER, Maria Paula
The present invention relates to the field of immunogenic compositions and vaccines, their manufacture, host cells which can be used in their manufacture and the use of such immunogenic compositions and vaccines in medicine. More particularly, it relates to Klebsiella pneumoniae O-antigens, conjugates ccccomprising a K. pneumoniae O-antigen, host cells suitable for their production and immunogenic compositions or vaccines containing at least one Klebsiella pneumoniae O-antigen.

77.WO/2021/261993PHARMACEUTICAL COMPOSITION FOR TREATMENT OF COVID-19 AND RELATED PATHOLOGIES
WO - 30.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/NL2021/050388 Solicitante UNTHREADT B.V. Inventor/a KHAN, Nisar Ahmed
The invention relates to a method and to a medicament for use in the treatment of COVID-19 and related pathologies, the medicament comprising or interacting with one or more conserved regions of at least 4 consecutive amino acids with a 100% match present in both the SARS-CoV-2 proteome and the human proteome, wherein the one or more conserved regions are preferably selected by: a. identification of one or more conserved regions of at least 4 consecutive amino acids with a 100% match between the SARS-CoV-2 proteome and the human proteome; b.identification of at least one pathway class from a systematic database comprising a plurality of human physiological pathway classes, each class

comprising a plurality of human proteins that are functionally related to the said physiological pathway, wherein the said at least one pathway class shares at least one pathology and/or complication of the COVID-19 infection as a result of dysfunction in the said pathway and comprises at least one human protein comprising one or more conserved regions of at least 4 consecutive amino acids that have a 100% match with the SARS-CoV-2 proteome; and c. selecting the said identified one or more conserved regions for the preparation of the medicament. Based on this approach peptides were selected for the treatment of COVID-19 and several pathologies and complications that can occur in the context of COVID-19, but also as a separate disease, pathology, or complication. The invention also relates to a vaccine comprising one or more agents interacting with at least one region of at least 4 consecutive amino acids present in the SARS-CoV-2 proteome, not conserved between the SARS-CoV-2 proteome and the human proteome. Finally, the invention can provide a molecular and cellular explanation for the deviant infectivity, clinical behaviour, and pathology of emerging SARS-CoV-2 variants over time, to design vaccines to specifically prevent these complications, and to select peptides as therapeutic modality to treat these clinical manifestations and complications.

78.WO/2021/262878NOVEL MOLECULE FOR MODULATION OF INNATE IMMUNE RESPONSES CONTROLLED BY STING PROTEIN
WO - 30.12.2021
Clasificación Internacional A61K 31/425 Nº de solicitud PCT/US2021/038738 Solicitante OREGON HEALTH & SCIENCE UNIVERSITY Inventor/a DEFILIPPIS, Victor
This invention concerns novel compounds useful in potentiating immune responses and may be used as a vaccine adjuvant, particularly including 2-(cyclohexylsulfonyl)-N,N-dimethyl-4-tosylthiazol-5- amine, or a pharmaceutically acceptable salt, co-crystal, solvate, hydrate, isomer (including optical isomers, racemates, or other mixtures thereof), tautomer, isotope, polymorph, prodrug thereof.

79.WO/2021/250628BACTERIAL IMMUNIZATION USING NANOPARTICLE VACCINE
WO - 16.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud PCT/IB2021/055159 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a ADAMO, Roberto
Methods of inducing an immunogenic response against a bacterial polysaccharide or oligosaccharide, and constructs and compositions for use in such methods.

80.20210393539FERRITIN NANOPARTICLES COMPRISING A CHEMOTHERAPEUTIC AGENT
US - 23.12.2021
Clasificación Internacional A61K 9/51 Nº de solicitud 17289807 Solicitante INTHENA S.R.L. Inventor/a Serena Mazzucchelli
The present invention concerns the field of cancer therapy, and in particular to the use of nanoparticles for the preservation of T cells. In particular, the present invention relates to the use of nanoparticles for the treatment of recurrent cancer and for use as a cancer vaccine.

81.20210386840BI-SPECIFIC TARGETED CHIMERIC ANTIGEN RECEPTOR T CELLS
US - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17141142 Solicitante City of Hope Inventor/a Xiuli Wang
T cells expressing a chimeric antigen receptor and a T cell receptor specific for CMV (bi-specific T cells) are described as a methods for using such cells in immunotherapy. In the immunotherapy methods, the recipient can be exposed to a CMV vaccine in order to expand and/or stimulate the be-specific T cells.

82.20210388032COMPOSITIONS AND METHODS FOR PREVENTING AND TREATING CORONAVIRUS INFECTION - SARS-COV-2 VACCINES
US - 16.12.2021

Clasificación Internacional C07K 14/005 Nº de solicitud 17387105 Solicitante Janssen Pharmaceuticals, Inc. Inventor/a Johannes Petrus Maria LANGEDIJK
The invention relates to immunogenic compositions and vaccines containing a coronavirus (e.g., Wuhan coronavirus (2019-nCoV; also referred to as SARS-CoV-2)) protein or a polynucleotide encoding a coronavirus (e.g., Wuhan coronavirus (2019-nCoV; SARS-CoV-2)) protein and uses thereof. The invention also provides methods of treating and/or preventing a coronavirus (e.g., Wuhan coronavirus (2019-nCoV; SARS-CoV-2)) infection by administering an immunogenic composition or vaccine to a subject (e.g., a human). The invention also provides methods of detecting and/or monitoring a protective anti-coronavirus (e.g., Wuhan coronavirus (2019-nCoV; SARS-CoV-2)) antibody response (e.g., anti-coronavirus antibody response, e.g., anti-2019-nCoV antibody response, e.g., anti-Spike antibody response, e.g., anti-Spike neutralizing antibody response). The present invention relates to isolated nucleic and/or recombinant nucleic acid encoding a coronavirus S protein, in particular a SARS-CoV-2 S protein, and to the coronavirus S proteins, as well as to the use of the nucleic acids and/or proteins thereof in vaccines.

83.20210393757Melanoma Canine Vaccine Compositions and Methods of Use Thereof
US - 23.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17281726 Solicitante The Wistar Institute Inventor/a Hildegund C.J. Ertl
The present invention relates to compositions and methods for generating a nucleic acid delivery system comprising a nucleic acid sequence encoding a heterologous protein comprising a canine tumor-specific antigen (canine melanoma polyepitope (K9Melapoly)) and an inhibitor of an immuno-inhibitory pathway (HSV-1 gD). Additionally, the current invention includes compositions and methods of treating and/or preventing or immunizing a canine against melanoma, and methods of inducing an effector and memory T cell immune response in a canine administered the nucleic acid delivery system of the invention. Furthermore, the invention encompasses a pharmaceutical composition for vaccinating a canine as well as a protein expression system.

84.WO/2021/254476MAGNETIC MICROPARTICLE CHEMILUMINESCENCE REAGENT KIT FOR DETECTING SARS-COV-2 VIRUS NEUTRALISING ANTIBODIES AND APPLICATION THEREFOR
WO - 23.12.2021
Clasificación Internacional G01N 33/569 Nº de solicitud PCT/CN2021/100834 Solicitante NANJING GENSCRIPT BIOTECH CO., LTD. Inventor/a QIN, Xijian
A magnetic microparticle chemiluminescence reagent kit for detecting SARS-CoV-2 virus neutralising antibodies and an application therefor. The reagent kit comprises the spike protein part of the novel coronavirus and an ACE2 protein or a functional fragment thereof that specifically binds to the spike protein part of the novel coronavirus; the spike protein part of the novel coronavirus connects to a marker, and the ACE2 protein or functional fragment thereof connects to a magnetic microparticle; or the spike protein part of the novel coronavirus connects to a magnetic microparticle, and the ACE2 protein or functional fragment thereof connects to a marker. The magnetic microparticle chemiluminescence reagent kit can be used for screening and identifying neutralising antibodies in a biological sample, evaluating the effectiveness of a vaccine, and implementing qualitative or quantitative testing of SARS-CoV-2 virus neutralising antibodies in the sample of a subject.

85.WO/2021/252904RIBONUCLEOPROTEIN APPROACH TO BOOST THE STING SIGNALING FOR CANCER IMMUNOTHERAPY
WO - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/US2021/037023 Solicitante MASSACHUSETTS INSTITUTE OF TECHNOLOGY Inventor/a HAMMOND, Paula

Disclosed herein is a non-covalent complex, comprising: a tetramer of a recombinant protein; and an agonist of a Stimulator of Interferon Gene (STING) protein or a pharmaceutically acceptable salt thereof, wherein the recombinant protein comprises a STING protein lacking a transmembrane domain (STINGΔTM protein). Additionally, provided is a vaccine composition, comprising a non-covalent complex and a pharmaceutically acceptable carrier, wherein the non-covalent complex comprises: a recombinant protein comprising a STINGΔTM protein and a tumor epitope; and an agonist of a STING protein or a pharmaceutically acceptable salt thereof. Further provided are methods of treating and preventing cancer using the disclosed complexes, pharmaceutical compositions, and vaccines.

86.20210393762BACTERIAL VACCINE COMPONENTS AND USES THEREOF
US - 23.12.2021
Clasificación Internacional A61K 39/085 Nº de solicitud 17410908 Solicitante SOCPRA - SCIENCES ET GENIE, s.e.c. Inventor/a FRANCOIS MALOUIN
Agents, compositions, methods and kits useful for the treatment and diagnosis of Staphylococcal intramammary infection are disclosed. The agents, compositions, methods and kits are derived from genes expressed during Staphylococcal intramammary infection, and more particularly genes SACOL0029, based on the gene nomenclature from the Staphylococcus aureus COL (SACOL) genome.

87.20210386845VACCINE AGAINST KLEBSIELLA PNEUMONIAE
US - 16.12.2021
Clasificación Internacional A61K 39/108 Nº de solicitud 16768350 Solicitante Idorsia Pharmaceuticals Ltd. Inventor/a Arun Naini
The present invention relates to a synthetic oligosaccharide of general formula (I): T*-[(—U_{x+4}—U_{x+3}—U_{x+2}—U_{x+1}—U_x)$_m$—(V_{x+2}—V_{x+1}—V_x)$_{1-m}$-T-O-L-E that is related to *Klebsiella pneumoniae* serotype O3, O3b and/or O5 lipopolysaccharide and conjugate thereof. Said synthetic oligosaccharide, said conjugate and pharmaceutical composition containing said synthetic oligosaccharide or said conjugate are useful for prevention and/or treatment of diseases associated with *Klebsiella pneumoniae*. Furthermore, the synthetic oligosaccharide of general formula (I) is useful as marker in immunological assays for detection of antibodies against *Klebsiella pneumoniae* serotype O3, O3b and/or O5 bacteria.

88.2021903911Coronavirus vaccine (2)
AU - 16.12.2021
Clasificación Internacional Nº de solicitud 2021903911 Solicitante The University of Melbourne Inventor/a

89.3925973IMPFSTOFFZUSAMMENSETZUNGEN UND VERFAHREN ZUR WIEDERHERSTELLUNG DER NKG2D-WEGFUNKTION GEGEN KREBS
EP - 22.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 21178565 Solicitante DANA FARBER CANCER INST INC Inventor/a DRANOFF GLENN

90.20210389308DETECTING ADAPTIVE IMMUNITY TO CORONAVIRUS
US - 16.12.2021
Clasificación Internacional G01N 33/536 Nº de solicitud 17408096 Solicitante NONIGENEX, INC. Inventor/a Jerome P. LAPOINTE
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.

91.20210393763NOVEL PNEUMOCOCCAL VACCINE FORMULATIONS
US - 23.12.2021
Clasificación Internacional A61K 39/09 Nº de solicitud 17460658 Solicitante The Research Foundation for The State University of New York Inventor/a Blaine PFEIFER
Immunogenic composition are provided comprising PnCo and/or GlpO polypeptides identified as being preferentially expressed during the virulent phase of an infection related to streptococcal bacteria. The compositions can be used for eliciting immune response against streptococcal infections, such as against infections caused by *S. pneumoniae.*

92.783807ATTENUATED DENGUE VIRUSES
NZ - 24.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud 783807 Solicitante CODAGENIX INC. Inventor/a MUELLER, Steffen
The present invention provides for modified Flavivirus such as a modified dengue virus type 1, 2, 3, 4, a combination of these, or a tetravalent combination of these. The modification according to various aspects of the invention results in reduced viral protein expression compared to a parent virus, wherein the reduction in expression is the result of recoding one or more regions of the virus. For example, the prM, or envelope (E) region can be recoded. In various embodiments one or more regions are recoded by reducing the codon pair bias or codon usage bias of the protein-encoding sequence. These modified Flaviviruses are used as vaccine compositions to provide a protective immune response.

93.20210393760PLASMODIUM WITH HISTAMINE RELEASING FACTOR (HRF) DEFICIENCY FOR USE AS A VACCINE
US - 23.12.2021
Clasificación Internacional A61K 39/015 Nº de solicitud 17151516 Solicitante INSTITUT PASTEUR Inventor/a Salah MECHERI
A method of generating an antibody and cellular immune response against a *Plasmodium* in a primate, comprising administering at least 10^3 genetically modified live *Plasmodium* to the primate, wherein the genetically modified live *Plasmodium* is a species selected from *Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae, Plasmodium knowlesi, Plasmodium coatneyi, Plasmodium cynomolgi*, and *Plasmodium simium*, and wherein the genetically modified live *Plasmodium* does not produce functional histamine releasing factor (HRF) protein, to thereby induce an antibody and cellular immune response against the *Plasmodium* in the primate. In some embodiments at least 10^4 genetically modified live *Plasmodium* is administered to the primate. An immunogenic composition for administration to a primate, comprising a at least 10^3 genetically modified live *Plasmodium* wherein the genetically modified live *Plasmodium* is a species selected from *Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae, Plasmodium knowlesi, Plasmodium coatneyi, Plasmodium cynomolgi*, and *Plasmodium simium*, and wherein the genetically modified live *Plasmodium* does not produce functional histamine releasing factor (HRF) protein; and at least one pharmaceutically acceptable excipient and/or support. In some embodiments the immunogenic composition comprises at least 10^3 genetically a modified live *Plasmodium.*

94.20210386852MEASLES VIRUS VACCINE EXPRESSING SARS-COV-2 PROTEIN(S)
US - 16.12.2021
Clasificación Internacional A61K 39/215 Nº de solicitud 17143740 Solicitante University of Pittsburgh - Of the Commonwealth System of Higher Education Inventor/a William Paul Duprex
A recombinant measles viral vector comprising a nucleic acid sequence encoding a Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) spike glycoprotein is provided. Polypeptides comprising the SARS-CoV-2 spike glycoprotein also are provided, as well as related nucleic acids,

vectors, and compositions. The polypeptides, nucleic acids, vectors, and compositions can be used in methods of preventing, inhibiting, reducing, eliminating, protecting, or delaying the onset of an infection or an infectious clinical condition caused by coronavirus and methods for inducing an immune response against a coronavirus.

95.20210395336NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST VARIOUS TUMORS
US - 23.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 17396345 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.

96.20210395334NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST VARIOUS TUMORS
US - 23.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 17390503 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.

97.20210395338PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST VARIOUS TUMORS
US - 23.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 17459155 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.

98.20210395337PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST VARIOUS TUMORS
US - 23.12.2021
Clasificación Internacional C07K 14/74 Nº de solicitud 17459150 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.

99.WO/2021/255270SELF-AMPLIFYING SARS-COV-2 RNA VACCINE
WO - 23.12.2021
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/066679 Solicitante ZIPHIUS VACCINES Inventor/a SAHU, Itishri
The present invention relates self-replicating RNA molecules comprising a sequence encoding nonstructural alphavirus proteins and a sequence encoding a SARS-CoV-5 2 protein antigen.

100.WO/2021/255480AUTOTRANSPORTER SYSTEM
WO - 23.12.2021
Clasificación Internacional C12N 15/62 Nº de solicitud PCT/GB2021/051561 Solicitante PROKARIUM LIMITED Inventor/a CARRERA, Marc Biarnes
The present invention provides for a modified autotransporter and the use of genetically engineered microorganisms comprising said modified autotransporters in the treatment of infectious and neoplastic disease. The present invention therefore also relates to vaccine and immunotherapeutic compositions comprising said genetically engineered microorganism.

101.WO/2021/256470BETA-GLUCAN FOR IMMUNO-ENHANCEMENT AND/OR IMMUNO-BALANCING, AND FOR ADJUVANT USE
WO - 23.12.2021
Clasificación Internacional A61K 31/716 Nº de solicitud PCT/JP2021/022709 Solicitante SOPHY INC. Inventor/a ONAKA, Takashi
The present invention is to provide a composition for inducing, enhancing and/or balancing an immune response, comprising a beta-glucan produced by Aureobasidium pullulans AFO-202 (FERM BP-19327). The present invention is also to provide a vaccine adjuvant comprising a beta-glucan produced by Aureobasidium pullulans AFO-202 (FERM BP-19327). The present invention is further to provide a method for inducing, enhancing and/or balancing an immune response with a beta-glucan produced by Aureobasidium pullulans AFO-202 (FERM BP-19327).

102.WO/2021/257880USE OF ALDH MODULATORS OR GASDERMIN D INHIBITORS FOR PREVENTION AND TREATMENT OF AGING AND AGING-RELATED DISORDERS AND FOR BOOSTING AN IMMUNE SYSTEM
WO - 23.12.2021
Clasificación Internacional A61K 31/145 Nº de solicitud PCT/US2021/037903 Solicitante SPRING DISCOVERY, INC. Inventor/a JACOBSON, Rachel
Disclosed herein are active ingredients, compositions, and methods for increasing lifespan, for preventing or treating an aging-related disorder, for reducing a symptom of aging, and/or boosting an immune system in a mammal. Also disclosed herein are active ingredients, compositions, and methods for improving effectiveness of a vaccine in a mammal. The compositions comprise, at least, a therapeutically effective amount of an aldehyde dehydrogenase (ALDH) modulator or a gasdermin D inhibitor.

103.20210395335PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST VARIOUS TUMORS
US - 23.12.2021

Clasificación Internacional C07K 14/74 Nº de solicitud 17390516 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.

104.WO/2021/260052BINDING PROTEIN SPECIFIC FOR THE SPIKE PROTEIN OF SEVERE ACUTE RESPIRATORY SYNDROME CORONA VIRUS 2 (SARS-COV-2)
WO - 30.12.2021
Clasificación Internacional C07K 16/00 Nº de solicitud PCT/EP2021/067225 Solicitante NAVIGO PROTEINS GMBH Inventor/a KAHL, Mathias
The present invention relates to novel proteins that specifically bind to the spike protein or domains thereof of the severe acute respiratory syndrome corona virus 2 (SARS-Cov-2) or variants of SARS-Cov-2. The proteins of the present invention represent advanced and powerful tools, for example for the purification of the virus or a vaccine for the virus, by virtue of said binding affinity for spike protein or domains of the spike protein of SARS-Cov-2 or variants thereof. Thus, the novel proteins of the present invention are particularly advantageous because they allow precise capturing of proteins or particles comprising spike proteins, S1 domain, and/or RBD in affinity chromatography. Further, the novel proteins of the present invention can be used in medical applications caused by or related to SARS-Cov-2 or variants thereof.

105.20210393696COMPOSITIONS FOR IMPROVING VACCINE SAFETY AND EFFICACY AND METHODS OF USE THEREOF
US - 23.12.2021
Clasificación Internacional A61K 35/24 Nº de solicitud 17309201 Solicitante Kansas State University Research Foundation Inventor/a Megan Niederwerder
The present disclosure provides methods and compositions for reducing the incidence, severity, and/or duration of at least one sign of respiratory infection. The methods include the steps of administering a composition comprising gastrointestinal microbiota and an immunogenic composition to an animal in need thereof.

106.20210393756NOVEL PEPTIDES AND COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN IMMUNOTHERAPY AGAINST RENAL CELL CARCINOMA (RCC) AND OTHER CANCERS
US - 23.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 17402068 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.

107.WO/2021/254473IMMUNOGENIC COMPOSITION AGAINST SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-COV-2)

WO - 23.12.2021
Clasificación Internacional C12N 15/50 Nº de solicitud PCT/CN2021/100826 Solicitante MEDIGEN VACCINE BIOLOGICS CORPORATION Inventor/a KUO, Tsun-Yung
Provided an immunogenic composition against severe acute respiratory syndrome coronavirus (SARS-CoV-2), especially to an immunogenic composition having a recombinant SARS-CoV-2 S protein and adjuvant.

108.WO/2021/260075BINDING PROTEIN SPECIFIC FOR THE SPIKE PROTEIN OF SEVERE ACUTE RESPIRATORY SYNDROME CORONA VIRUS 2 (SARS-COV-2)
WO - 30.12.2021
Clasificación Internacional C07K 16/00 Nº de solicitud PCT/EP2021/067257 Solicitante NAVIGO PROTEINS GMBH Inventor/a KAHL, Mathias
The present invention relates to novel proteins that specifically bind to the spike protein or domains thereof of the severe acute respiratory syndrome corona virus 2 (SARS-Cov-2) or variants of SARS-Cov-2. The proteins of the present invention represent advanced and powerful tools, for example for the purification of the virus or a vaccine for the virus, by virtue of said binding affinity for spike protein or domains of the spike protein of SARS-Cov-2 or variants thereof. Thus, the novel proteins of the present invention are particularly advantageous because they allow precise capturing of proteins or particles comprising spike proteins, S1 domain, and/or RBD in affinity chromatography. Further, the novel proteins of the present invention can be used in medical applications caused by or related to SARS-Cov-2 or variants thereof.

109.WO/2021/263165METHODS, COMPOSITIONS, AND SYSTEMS FOR DETECTING CORONAVIRUS NEUTRALIZING ANTIBODIES
WO - 30.12.2021
Clasificación Internacional G01N 33/68 Nº de solicitud PCT/US2021/039185 Solicitante LABORATORY CORPORATION OF AMERICA HOLDINGS Inventor/a PETROPOULOS, Christos, J.
The present disclosure relates to methods, compositions, and systems for detecting whether a subject exposed to a coronavirus has developed a neutralizing antibody response. Also disclosed are methods for determining whether a patient infected by a coronavirus is likely to respond to treatment with an antibody preparation. Also disclosed are methods for detecting the level of neutralizing antibody response in a sample of serum from a subject exposed to a coronavirus or to a coronavirus vaccine.

110.20210393771VIRAL VACCINES FOR IN VIVO EXPRESSION OF A NUCLEIC ACIDS ENCODIND AN IMMUNOGENIC PEPTIDE AND METHODS OF USING THE SAME
US - 23.12.2021
Clasificación Internacional A61K 39/385 Nº de solicitud 16909311 Solicitante ORBIS HEALTH SOLUTIONS, LLC Inventor/a Thomas E. Wagner
The present disclosure provides particles for delivering a nucleic acid that encodes an immunogenic peptide in an antigen presenting cell. The disclosed particles can function as a vaccine and can be used to treat or prevent a viral or bacterial infection in a subject by expressing in vivo an immunogenic peptide, thereby stimulating the subject's immune system to attack the virus or bacteria that naturally express the immunogenic peptide.

111.3925620PROLIFERATIONSVERFAHREN
EP - 22.12.2021
Clasificación Internacional A61K 39/145 Nº de solicitud 20754881 Solicitante KAO CORP Inventor/a ONISHI SHINTARO

Provided is a method for efficiently proliferating an influenza virus, which is usable as a starting material for a vaccine, in a host. A method for proliferating an influenza virus in a host, said method comprising a step for inhibiting the penetration of Bax in host cells into the mitochondrial inner membrane.

112.20210388196GENE DELIVERY CARRIER
US - 16.12.2021
Clasificación Internacional C08L 33/14 Nº de solicitud 17347791 Solicitante Massachusetts Institute of Technology Inventor/a Umberto Capasso Palmiero
Disclosed are methods, compositions, reagents, systems, and kits to prepare and utilize poly (β-amino ester) (PBAE) polymers, which are synthesized via Michael addition reactions of diacrylates and amines disclosed herein. Various embodiments utilize lactones and lactone derivatives to generate the diacrylate compounds. The PBAE polymers are shown to be effective biodegradable carriers for the delivery of an agent such as an organic molecule, inorganic molecule, nucleic acid, protein, peptide, polynucleotide, targeting agent, an isotopically labeled chemical compound, vaccine, or an immunological agent.

113.WO/2021/249012CORONAVIRUS VACCINE COMPOSITIONS, METHODS, AND USES THEREOF
WO - 16.12.2021
Clasificación Internacional C07K 14/00 Nº de solicitud PCT/CN2021/087066 Solicitante SICHUAN CLOVER BIOPHARMACEUTICALS, INC. Inventor/a LIANG, Peng
The present invention provides a complex of coronavirus antigens joined by in-frame fusion to a C-terminal portion of a collagen to form a disulfide bond-linked trimeric fusion protein. Also provided herein are methods for preventing the infection or producing the recombinant peptides and diagnostic methods.

114.20210386839VACCINE ADJUVANTS AND FORMULATIONS
US - 16.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 16641819 Solicitante THE CLEVELAND CLINIC FOUNDATION Inventor/a Vincent K. Tuohy
Compositions comprising an antigen, a carbohydrate, and a metabolizable oil, methods of administering such compositions to a subject, methods of making such compounds, and related compositions, methods, and uses.

115.3923981IMPFSTOFFADJUVANZIEN UND FORMULIERUNGEN
EP - 22.12.2021
Clasificación Internacional A61K 39/00 Nº de solicitud 20755304 Solicitante CLEVELAND CLINIC FOUND Inventor/a TUOHY VINCENT KEVIN
Compositions comprising an antigen, a carbohydrate, and a metabolizable oil, methods of administering such compositions to a subject, methods of making such compounds, and related compositions, methods, and uses.

116.WO/2021/257492CELL LINE FOR PRODUCTION OF MAREK'S DISEASE VIRUS VACCINE AND METHODS OF MAKING AND USING THE SAME
WO - 23.12.2021
Clasificación Internacional C12N 7/00 Nº de solicitud PCT/US2021/037306 Solicitante ZOETIS SERVICES LLC Inventor/a AMEISS, Keith, Allen
The present application relates to an avian cell line capable of supporting viral growth of Marek's Disease Virus (MDV), including Herpes Virus of Turkeys (HVT), methods of producing such cell lines, and therapeutic uses of the cell lines and resulting vaccines.

117.WO/2021/262095CHIMERIC VIRAL VACCINE
WO - 30.12.2021

Clasificación Internacional C07K 14/18 Nº de solicitud PCT/SG2021/050353 Solicitante NATIONAL UNIVERSITY OF SINGAPORE Inventor/a CHU, Jang Hann Justin
The present invention relates to an isolated polynucleotide comprising a) a tetracycline-responsive promoter; and b) a nucleic acid sequence encoding a live attenuated chimeric virus. The live attenuated chimeric virus may comprise or consist of: i) a 5'-noncoding region, a nucleic acid encoding a capsid, a nucleic acid encoding a replication machinery and a 3'-noncoding region, each from the Denv-2 genome; and ii) a nucleic acid sequence encoding a premembrane protein and an envelope protein derived from the Zika genome, wherein the tetracycline-responsive promoter is a TRE-minCMV promoter, in addition, the invention encompasses an immunogenic composition comprising said polynucleotide and a method of treating or preventing Zika viral infection.

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

Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20211201->20211215), 22 records.

	PAT. NO.	Title
1	11,197,926	Recombinant influenza viruses with stabilized HA for replication in eggs
2	11,197,925	Influenza B virus replication for vaccine development
3	11,197,924	Photochemical preparation method for autologous plasma inactivated vaccine for treating AIDS
4	11,197,923	Methods and compositions for live attenuated viruses
5	11,197,922	Live attenuated vaccines
6	11,197,920	Vaccines
7	11,197,892	Peptides and combination of peptides of non-canonical origin for use in immunotherapy against different types of cancers
8	11,193,155	Designer .alpha. 6-fucosidase mutants enable direct core fucosylation of intact N-glycopeptides and N-glycoproteins
9	11,191,830	Process for preparing pneumococcal polysaccharide-protein conjugates
10	11,191,829	Hepatitis B treatment vaccine base on inactivated whole recombinant Hansenula polymorpha cells which expresses HBsAg and HBcAg
11	11,191,828	MHC class I associated hepatitis B peptides
12	11,209,436	Vitro potency assay for protein-based meningococcal vaccines
13	11,209,428	Diagnostic test for vaccine validation and authentication and methods of use thereof
14	11,208,449	Peptides for use in immunotherapy against cancers

15	11,208,448	B*44 restricted peptides for use in immunotherapy against cancers and related methods
16	11,208,434	Immunotherapy against several tumors including neuronal and brain tumors
17	11,207,403	Human cytomegalovirus immunogenic composition
18	11,207,400	Compositions and methods for inducing protective immunity against human immunodeficiency virus infection
19	11,207,390	Treatment of pruritus in horses
20	11,203,629	LAMP constructs
21	11,202,825	Attenuated infectious bronchitis virus
22	11,202,823	Multi-subunit vaccines to elicit both MHC- and CD1-restricted T cell responses

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