



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.

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- Noticias más recientes en la Web sobre vacunas.
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Noticias en la Web

Los 10 personajes de los momentos más significativos de la ciencia en 2025

1 ene. Se termina el 2025, considerado "un año difícil para la ciencia" en el mundo, y Nature eligió su lista de 10 personajes de los momentos más significativos de la ciencia en 2025.

"La lista de este año celebra la exploración de nuevas fronteras, la promesa de avances médicos revolucionarios, el compromiso inquebrantable con la salvaguarda de la integridad científica y a aquellas personas que dan forma a las políticas globales que salvan vidas". Así lo resume el editor de artículos especiales de Nature, Brendan Maher, quien escribe que "en un año difícil para la ciencia en todo el mundo, fue reconfortante ver los increíbles descubrimientos y el inspirador trabajo de tantos investigadores".

"Nature destaca a 10 personas que han participado en algunos de los momentos más significativos de la ciencia en 2025."

Susan Monarez

La revista abre la lista con la inmunóloga Susan Monarez, quien se enfrentó a la administración de Donald Trump cuando se le ordenó aplicar políticas de vacunación no respaldadas por la ciencia.

Monarez, a la que se refiere como "guardiana de la salud pública", quien fue despedida un mes después de ser nombrada directora de los Centros para el Control y la Prevención de Enfermedades de EE. UU.

"Me despidieron por mantener la integridad científica", declaró en una audiencia del Congreso en septiembre y, según su relato, se negó a cumplir las órdenes del secretario de Salud Robert F. Kennedy Jr., de despedir a los principales científicos de la agencia y de aprobar previamente las recomendaciones sobre vacunas sin considerar primero los datos científicos pertinentes, recuerda la publicación.

Luciano Moreira

Luciano Moreira, investigador agrícola de la Fundación Oswaldo Cruz en Belo Horizonte (Brasil), es otro de los personajes por abrir la primera fábrica que produce mosquitos infectados con la bacteria Wolbachia.

Al liberar millones de estos insectos, cuya capacidad para propagar patógenos humanos nocivos se ha visto mermada, Moreira espera combatir la propagación del dengue, una enfermedad viral mortal.

"El bebé pionero"

"El bebé pionero", así se refiere la publicación al pequeño identificado como KJ, que tenía seis meses cuando recibió en Filadelfia (EE.UU.) una terapia experimental para tratar la enfermedad incurable CPS1, que dificulta a su cuerpo procesar las proteínas.

El millonario tratamiento hiperpersonalizado se creó en un tiempo récord y la pregunta ahora es, indica Nature, "cómo garantizar que otros niños tengan la misma oportunidad".



Sarah Tabrizi

También a nivel biomédico, Nature señala a la neuróloga del University College de Londres, Sarah Tabrizi, que forma parte de un equipo que ha desarrollado una terapia que ralentiza el desarrollo de la enfermedad de Huntington.

Liang Wenfeng

2025 fue además un año "de cambios disruptivos" y el empresario chino Liang Wenfeng "revolucionó" el mundo de la Inteligencia Artificial con DeepSeek.

Se trata de un gran modelo lingüístico que funciona a la par con algunos de los mejores, "pero que se construyó con una fracción de los recursos", además se puede descargar y desarrollar de forma gratuita, "lo que ha supuesto una gran ventaja para los científicos".



Vera Rubin

Este año se inauguró el Observatorio estadounidense Vera Rubin, con la mayor cámara del mundo, que opera desde el norte de Chile.

La revista apunta al físico de la Universidad de California Tony Tyson, cuyo trabajo en cámaras digitales fue fundamental para el desarrollo del telescopio de 810 millones de dólares, que ideó por primera vez hace más de 30 años.

Yifat Merbl

El descubrimiento de una faceta completamente nueva del sistema inmunitario al estudiar los centros de reciclaje de las proteínas de las células, los proteasomas, es la investigación en la que sobresale la bióloga Yifat Merbl, del Instituto Weizmann de Ciencias de Rehovot (Israel).

La funcionaria de salud pública de la Universidad de Witwatersrand (Sudáfrica) Precious Matsoso gana su lugar en la lista como la negociadora del primer tratado mundial de preparación para pandemias, acordado el pasado mayo tras años de arduas negociaciones.

Achal Agrawal

Otro de los protagonistas es el científico de datos, Achal Agrawal, quien descubrió problemas de integridad en la investigación en su país y cuyo trabajo contribuyó a "un cambio histórico en la política de clasificación de las instituciones de educación superior en la India".

Mengran Du

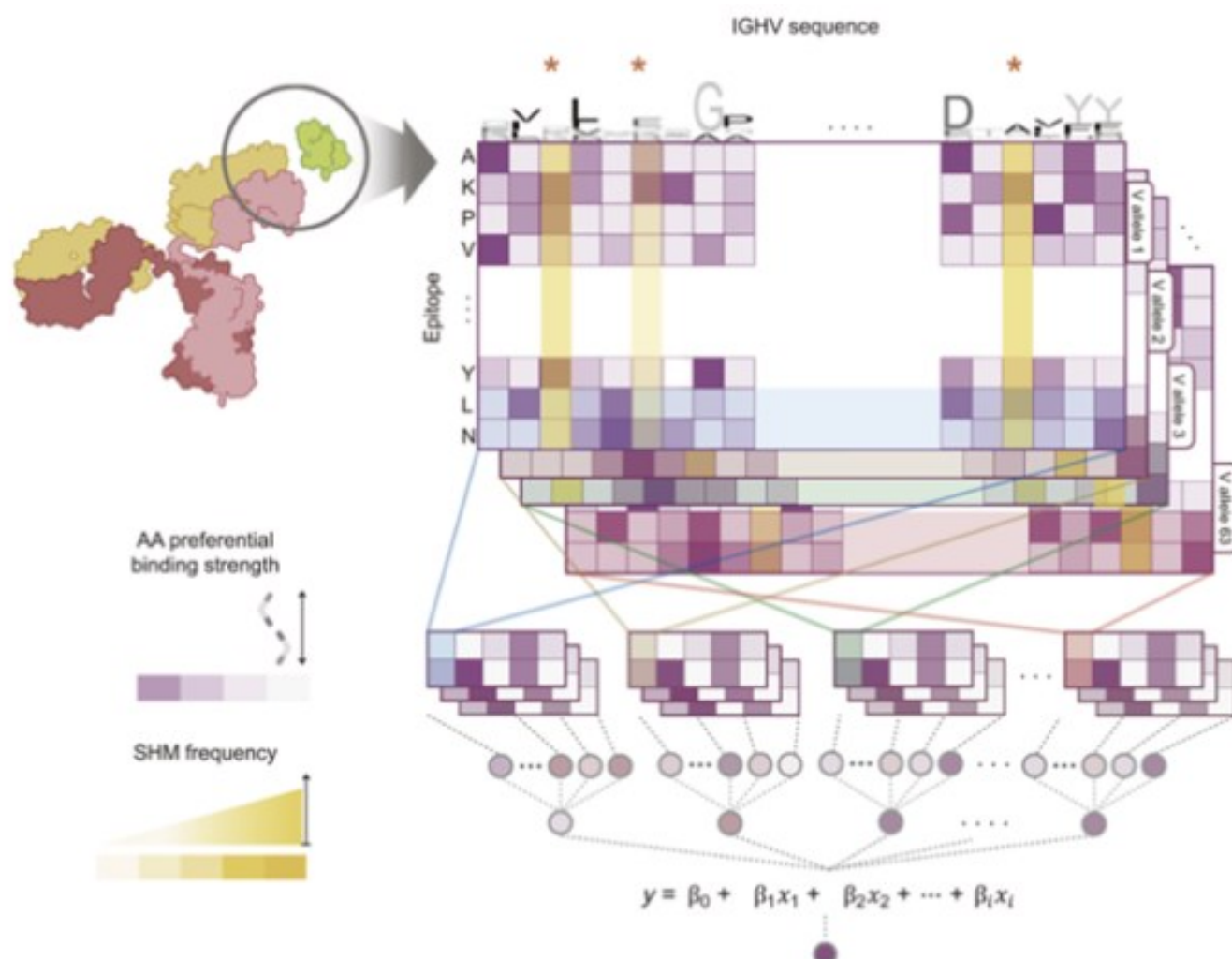
La lista la completa la geocientífica de la Academia China de Ciencias, Mengran Du, que se enfrentó "a riesgos de otro tipo" cuando ella y su equipo se sumergieron a 9.000 metros bajo el océano y observaron por primera vez un ecosistema lleno de extrañas criaturas.

Nature's 10 no es una clasificación de los diez mejores, sino una lista que explora los avances y las historias importantes de la ciencia de este año y algunas de las personas que han desempeñado un papel importante.

Fuente: Emisoras Unidas. Disponible en <https://n9.cl/h2gas>

AI-based Personalized Cancer Vaccine Development Path Opens Up

Jan 2. Domestic researchers have developed an artificial intelligence (AI) model that predicts the reactivity of B-cells, immune cells essential for anti-cancer immune function. When it becomes possible to predict individual B-cell immune responses that differ from person to person, the development of personalized cancer vaccines is expected to become feasible.



A schematic diagram of an AI model that predicts the process by which mutations occurring in cancer cell DNA react with B-cell immune receptors. (Photo courtesy of SCL Science)

SCL Science announced on Jan. 1 that the research team of CEO Choi Jung-gyun (KAIST Department of Bio and Brain Engineering professor) at its research-specialized subsidiary Neogenlogic has developed technology capable of quantitatively predicting B-cell reactivity using AI.

B-cells play important roles in anti-cancer immune function alongside T-cells. B-cells have the characteristic of structurally binding when they detect neoantigens, which are antigens composed of protein fragments derived from cancer cell mutations. Neoantigens are unique characteristics found only in cancer cells and are attracting attention as key targets for next-generation cancer vaccines. How accurately neoantigens can be selected is considered a core factor for successful personalized cancer vaccine development. This is because personalized cancer vaccines are treatment strategies that induce immune responses based on individual patients' cancer genome variations.

However, current cancer vaccine development focuses on neoantigen discovery through T-cell-centered immune responses. B-cell-mediated immune responses are not sufficiently reflected. The new AI model developed by the research team can predict B-cell reactivity by learning the structural binding characteristics between mutant proteins and B-cell receptors. The researchers conducted verification through large-scale cancer genome data, animal experiments, and cancer vaccine clinical trial data. Particularly, analysis results of cancer vaccine clinical trial data confirmed that integrating both T-cell and B-cell responses, rather than T-cells alone, can significantly enhance anti-tumor immune effects in clinical settings.

Choi stated, “We are currently conducting preclinical development of a personalized cancer vaccine platform and are preparing to submit an Investigational New Drug (IND) application to the U.S. Food and Drug Administration (FDA) with the goal of entering clinical trials in 2027.” He added, “Based on our proprietary AI technology, we will enhance the scientific completeness of cancer vaccine development and systematically pursue the transition to clinical stages.” Choi currently oversees the technical aspects of Neogenlogic. KAIST doctors Kim Jung-yeon and Ahn Jin-hyeon participated in this research as co-first authors. The research results were published in the December issue of the international academic journal *Science Advances*.

Fuente: Business Korea. Disponible en <https://n9.cl/pi9lq3>

Alerta en 2026: Virus que preocupan a la OMS

2 ene. A casi seis años del inicio de la pandemia de COVID-19, la Organización Mundial de la Salud (OMS) mantiene activa una vigilancia reforzada sobre una serie de virus que representan una amenaza real para la salud pública global de cara a 2026.

La experiencia reciente dejó en evidencia las debilidades estructurales de los sistemas sanitarios, la rapidez con la que pueden surgir nuevas variantes y el impacto económico y social de una emergencia epidemiológica mal contenida.

Virus prioritarios según la OMS rumbo a 2026

COVID-19 y nuevas variantes del SARS-CoV-2

Aunque la emergencia sanitaria global fue levantada en 2023, la OMS insiste en que el SARS-CoV-2 sigue siendo una amenaza activa. La aparición constante de subvariantes, algunas con mayor capacidad de evasión inmunológica, mantiene en alerta a los sistemas de salud. Estudios publicados en *The Lancet* y reportes de la OMS confirman que la vigilancia genómica será clave en los próximos años, especialmente ante el riesgo de recombinaciones virales que puedan aumentar la transmisibilidad o la severidad clínica.



Virus del Ébola y Marburgo

Los filovirus, particularmente el Ébola y el virus de Marburgo, continúan en la lista de máxima prioridad. Brotes recientes en África subsahariana demostraron que, pese a los avances en vacunas

y tratamientos experimentales, la letalidad sigue siendo elevada. La OMS advierte que la urbanización acelerada y la movilidad regional aumentan el riesgo de expansión internacional, especialmente en países con sistemas de salud frágiles.

Virus de Lassa

Endémico en África occidental, el virus de Lassa causa fiebre hemorrágica y afecta cada año a cientos de miles de personas. Según datos de la OMS y el CDC, su subdiagnóstico es un problema crítico, ya que muchos casos se confunden con malaria u otras infecciones febriles. La falta de una vacuna ampliamente disponible convierte a Lassa en una amenaza persistente.



Virus Nipah

El virus Nipah, transmitido por murciélagos frugívoros y con brotes documentados en Asia, preocupa por su alta tasa de mortalidad, que puede superar el 70 por ciento. La OMS destaca su capacidad de transmisión de persona a persona y la ausencia de tratamientos específicos. Investigaciones publicadas en *Nature* advierten que el aumento del contacto humano-animal incrementa el riesgo de nuevos brotes.

Además del SARS-CoV-2, el coronavirus causante del MERS (Síndrome Respiratorio de Oriente Medio) sigue bajo observación. Aunque su transmisión es menos eficiente, su letalidad es significativamente mayor. La OMS no descarta la aparición de nuevos coronavirus zoonóticos con potencial pandémico.

Virus del Zika y enfermedades transmitidas por vectores

El Zika, junto con el dengue y el chikungunya, sigue siendo motivo de preocupación, especialmente en regiones tropicales. El cambio climático ha ampliado el rango geográfico de los mosquitos vectores, aumentando el riesgo de brotes en zonas antes no afectadas. La OMS alerta sobre el impacto neurológico del Zika, particularmente en recién nacidos.

La amenaza de la “Enfermedad X”

Uno de los conceptos más relevantes en la estrategia de la OMS es la llamada “Enfermedad X”, un patógeno hipotético que aún no ha sido identificado, pero que podría surgir de manera inesperada y generar una pandemia devastadora. Este enfoque no se centra en un virus específico, sino en la necesidad de fortalecer la preparación global, la investigación acelerada y los mecanismos de respuesta temprana.

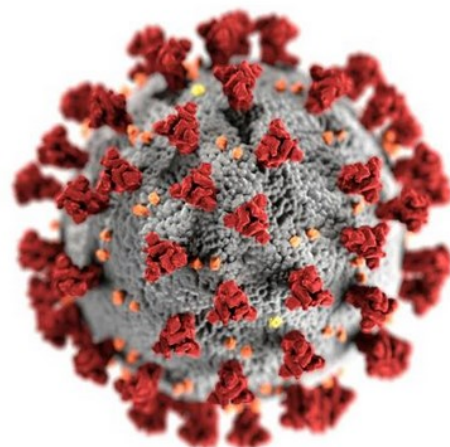
La OMS sostiene que la próxima pandemia no es una cuestión de “si”, sino de “cuándo”. Por ello, impulsa inversiones en plataformas de vacunas de amplio espectro, sistemas de alerta temprana y cooperación internacional. La Enfermedad X representa, en esencia, las lecciones no aprendidas del pasado.

Vigilancia de virus

De cara a 2026, la OMS enfatiza que la vigilancia epidemiológica global debe ser continua y transparente. La colaboración entre países, el intercambio de datos y el fortalecimiento de la atención primaria son pilares fundamentales. Además, organismos como el Banco Mundial y la ONU han advertido que la prevención es significativamente más barata que la respuesta tardía a una pandemia.

Los virus que preocupan a la OMS rumbo a 2026 reflejan una realidad ineludible: el mundo sigue siendo vulnerable a nuevas crisis sanitarias. La ciencia ha avanzado, pero los desafíos estructurales persisten.

Fuente: EXCELSIOR. Disponible en <https://n9.cl/6kkxoe>



The Future of mRNA Is Being Built in Asia-Pacific

Jan 3. Beyond scientific advancement, mRNA represents a strategic opportunity shaped by policy stability, public investment and regional collaboration. Across Asia-Pacific (APAC), governments are increasingly recognising that supportive regulatory frameworks and long-term funding can serve as powerful competitive advantages, attracting global capital and talent. While political dynamics in the United States have slowed momentum, experts emphasise that the science underpinning mRNA technology remains sound. To fully realise its potential, the region will need greater coordination across borders, including regulatory harmonisation and joint development pathways, to build a resilient mRNA ecosystem capable of addressing shared health challenges and driving long-term innovation.

mRNA first entered the global spotlight during COVID-19, turning companies such as Moderna and BioNTech into household names. The technology returned to headlines more recently for a very different reason. The United States Department of Health and Human Services (HHS) has announced plans to cut \$500 million from mRNA vaccine research funding.

While the US winds back research and investment, momentum is building elsewhere. Across Asia-Pacific (APAC), countries such as Australia, Singapore and South Korea are accelerating investment in mRNA research and manufacturing. The region now contributes about 30 per cent of global mRNA activity. Governments and institutions increasingly view mRNA not as a pandemic-era solution, but as a strategic platform technology with long-term value.

That shift is reflected in the breadth of applications now under development. Researchers across APAC are trialling mRNA-based therapies for cancer, Tuberculosis (TB), Urinary Tract Infections (UTIs) and next-generation influenza vaccines. In the coming pages we look at the current mRNA landscape, where it is heading, and how the United States' decision to halt funding could act as a catalyst for growth across the APAC mRNA sector.

APAC mRNA Landscape

There is a flurry of activity across APAC's mRNA ecosystem, supported by strong policy, research and manufacturing efforts. The key developments are outlined below:

Government Initiatives

Governments across APAC are playing a crucial role in expanding the mRNA sector, supporting progress from early research to manufacturing scale-up. In Australia, funding streams such as the Future Health Research and Innovation (FHRI) Fund in Western Australia, the National Collaborative Research Infrastructure Strategy (NCRIS) and state-level commitments through mRNA Victoria have channelled investment into RNA facilities, translational programmes, pandemic readiness and early-stage therapeutic development.

Singapore too has taken a similar approach through the Nucleic Acid Therapeutics Initiative (NATi) and a seven-year, \$130 million National Initiative for RNA Biology and Its Applications (Nirba), backed by the National Research Foundation to support work spanning RNA vaccines, disease therapy and prevention. South Korea has gone further still, embedding mRNA into national preparedness planning. Its KRW 505.2 billion mRNA Vaccine Development Support Project, overseen by the Korea Disease Control and Prevention Agency (KDCA), spans non-clinical research through phase III trials, with the aim of securing COVID-19 mRNA licences by 2028 and enabling vaccine deployment within 100–200 days in future pandemics.

“Many regional countries view mRNA as strategically important from a scientific preparedness and long-term innovation standpoint, particularly in the context of pandemic preparedness. This has driven public-sector and academic investments aimed at building foundational expertise, workforce skills, and research infrastructure. APAC contributes about 30 per cent to the mRNA research, development and manufacturing. Markets such as Korea, Japan, Australia, and China are among those strengthening these ecosystems,” said Josephine Cheng, Senior Modality Expert, APAC Process Solutions, Life Science Business of Merck.

These investments are now translating into tangible scientific and manufacturing capability across the region. “The APAC region now has many strong elements for a flourishing mRNA Biopharma sector: Extensive pre-clinical, clinical and commercial grade mRNA manufacturing facilities that can support R&D and ensure supply independence, many big multi-national mRNA companies with research hubs and large regional offices presence, several new companies with large teams based in countries such as China. All these are underpinned by a strong foundational base in exceptional world-class RNA science and nanotechnology; many of which are supported by their respective Government-backed initiatives,” said Professor Archa Fox, The University of Western Australia’s School of Human Sciences, Director of Australian Centre for RNA Therapeutics in Cancer and Director of the RNA Innovation Foundry.

Platform and Delivery Innovation

Much of APAC’s scientific activity focuses on improving mRNA delivery and stability. These remain two of the most persistent challenges for the modality. In Singapore, researchers are developing targeted delivery platforms to improve mRNA stability, supported by up to \$2.87 million from CEPI for ACM Biolabs to validate its thermostable ACM Tunable Platform, which allows storage at 2–8°C rather than ultra-cold temperatures. A collaboration between the Yong Loo Lin School of Medicine at the National University of Singapore and Tsinghua University has also produced a new vaccine-delivery approach designed to improve safety, enhance effectiveness and reduce patient burden.

Manufacturing Capability and Infrastructure Build-out

APAC is building an advanced RNA manufacturing environment especially in Singapore and Australia. Australia (Victoria) has become the only location globally where both Moderna and BioNTech have committed R&D and manufacturing operations.

One of the major bottlenecks in making mRNA-LNP therapeutics commonplace in clinical practice is manufacturing, and Australia has multiple companies advancing domestic production capacity. In Sydney, this includes the NSW Government-run pilot RNA manufacturing facility and Aurora Biosynthetics, a pioneering advanced RNA therapeutics manufacturing company. CDMO Southern RNA is also establishing manufacturing operations in Queensland.

“Australia is supporting ecosystem development through initiatives such as RNA Australia, the RNA Institute at UNSW, BASE in Queensland and the Perth RNA Innovation Foundry at the University of Western Australia. From laboratory work through to clinical application, the country is building an integrated pipeline and laying the foundations for mRNA-based therapeutics to become a central component of clinical practice within the next five to 10 years as new products gain approval,” said Professor Greg Neely, Head, Dr. John and Anne Chong Lab for Functional Genomics, Charles Perkins Centre, School of Life and Environmental Sciences, The University of Sydney.

Singapore is also expanding its manufacturing footprint and has opened an mRNA BioFoundry at A*STAR’s Bioprocessing Technology Institute, using automation and machine learning to develop more efficient manufacturing workflows. “I see a robust and exciting mRNA landscape in APAC, with excellent foundational science on RNA in normal and diseased systems, as well as diverse mRNA research applications, including using RNA as medicine and targeting RNA. Increasingly, as more data is generated, RNA research also feeds into AI, enabling machine learning to learn RNA features and engineer better RNA drugs. To enable the use of mRNA in medicine, manufacturing and quality control are also very important. Singapore is building the technologies and infrastructure needed to enable high-quality RNA manufacturing,” said Dr Wan Yue, Executive Director, A*STAR Genome Institute of Singapore (A*STAR GIS).

Therapeutic Expansion Beyond COVID-19

Beyond vaccines, firms across APAC are expanding mRNA programmes into chronic disease, oncology and infectious diseases. In South Korea, GC Biopharma submitted an Investigational New Drug application for a phase I clinical trial of GC4006A, its mRNA COVID-19 vaccine candidate. Dx&Vx signed a \$220 million agreement with a US biotech partner to develop mRNA cancer vaccines, and EuBiologics has been selected to lead Korea’s \$356 million mRNA vaccine programme for future pandemics.

In Australia, researchers have reported pre-clinical success with an mRNA tuberculosis vaccine developed through collaboration between the University of Sydney, the Centenary Institute and the Monash Institute of Pharmaceutical Sciences, addressing limitations of the century-old BCG vaccine. The Victorian Government continues to support therapeutic expansion through the mRNA Victoria Research Acceleration Fund, with six research teams sharing AU\$1.7 million to advance mRNA treatments for heart disease, Alzheimer’s, neurological and autoinflammatory conditions. Separately, researchers led by the University of Technology Sydney, in collaboration with Commonwealth

Scientific and Industrial Research Organisation (CSIRO) and University of New South Wales (UNSW), secured AU\$1.8 million to develop an mRNA vaccine targeting urinary tract infections.

China is a major contributor to the global mRNA oncology pipeline. Of the 58 mRNA therapeutic cancer vaccines currently in development worldwide, 45 per cent originate from Chinese companies, even though none have yet entered phase III. WestGene Biopharma, Everest Medicines and Abogen Biosciences have received IND clearances in both the US and China and are viewed as potential candidates for global out-licensing. In Japan, Meiji Seika Pharma initiated collaborative research with the National Cancer Center to advance the clinical application of mRNA in oncology, including personalised cancer vaccines.

Where it is heading

APAC's momentum in mRNA is being driven by what scientists see as a widening runway beyond COVID-19. "I think the success of the COVID-19 mRNA-LNP vaccine really put the spotlight on mRNA as a powerful new technology. The fact that the COVID-19 mRNA vaccine has now been given to billions of people and shows an extremely good safety profile opens this technology to many other uses. The most obvious next application is to develop vaccines against other infectious diseases, then more generally as a platform to maintain readiness for future pandemics. The efforts are well underway in Australia and globally. We don't know yet what infectious agents will be most effectively prevented through mRNA vaccines vs our more traditional protein based approaches, but this knowledge will come over time," said Professor Neely.

Post-pandemic, APAC is building on the infrastructure established during COVID-19 and beginning to diversify into seasonal influenza, RSV, CMV, oncology and other areas.



“Beyond infectious diseases, the next major frontier for mRNA is in cancer vaccines, which function as therapeutic interventions. In this approach, mutations or genes that are uniquely expressed in a patient’s cancer, but not in healthy tissue, are encoded into mRNA and delivered using lipid nanoparticles. These strategies are designed to activate the patient’s immune system, enabling a targeted immune response that can eliminate tumour cells in responsive patients. Recent mRNA-based therapeutics, including those reported by BioNTech, have demonstrated promising efficacy in difficult-to-treat cancers such as pancreatic cancer. Significant research and development efforts in this area are ongoing in Australia and globally,” said Professor Neely.

Alongside oncology, researchers are exploring how mRNA can be used to re-engineer immune responses more directly. “In parallel, there are emerging efforts to use mRNA–lipid nanoparticle platforms to deliver chimeric antigen receptors to immune cells, including CAR-T, CAR-NK, and CAR-M cells, enabling the generation of tumour-killing cells directly within the patient’s body. Programmes such as those being advanced by CREATE Medicines are conducting cutting-edge clinical trials in Australia. This approach may represent the future direction of the CAR field. While early safety profiles appear encouraging, efficacy will need to be confirmed through ongoing and forthcoming clinical trial data,” said Professor Neely.

Beyond immuno-oncology, mRNA is also being applied to gene editing and gene replacement. “Another important area of progress is gene editing and gene replacement. At present, the most advanced applications involve mRNA–lipid nanoparticle–based base editors used to correct pathogenic mutations, with many successes concentrated in liver-targeted therapies due to the relative efficiency of mRNA–LNP delivery to this organ. Significant progress is expected in rare disease applications as new delivery strategies are developed,” said Professor Neely.

He added, “For gene replacement, mRNA–lipid nanoparticle platforms are being used to deliver functional or enhanced versions of human genes, either to correct loss-of-function mutations in rare diseases or to modify disease trajectories in more common conditions by supplying therapeutic gene copies. Early efforts have included cystic fibrosis, where delivery of functional CFTR has been demonstrated, although achieving sustained disease modification remains challenging.”

Professor Neely also leads a Sydney-based company, Enhanced Analgesics, which is developing mRNA–lipid nanoparticle therapeutics to deliver an enhanced version of a naturally occurring human pain-modulating protein. The therapy is administered intranasally, enabling delivery to the brain. In preclinical studies, this approach has demonstrated strong efficiency and therapeutic potential.

mRNA landscape in Japan

-Sayoko Taga, Manager, Public Relations Team, Public & External Affairs Dept, Meiji Pharma

Japan’s mRNA landscape is steadily evolving, shaped by domestic investment, active regulatory engagement, and growing alignment across industry, academia, and government to support both near-term scale-up and longer-term innovation.

Industrial base: Continued domestic investment in GMP manufacturing for mRNA/LNP, fill–finish, quality control and cold-chain, with large-scale capacity still being built out. Collaboration with domestic CDMOs is advancing and improving supply flexibility for clinical trials and scale-up.

Technology focus: Improving delivery (LNP design/targeting), enhancing thermostability, and exploring next-generation modalities such as self-amplifying RNA (saRNA) and circular RNA (circRNA), as well as combinations with immunotherapies. On the manufacturing side, capping efficiency and control of residual impurities are being strengthened.

Regulatory and development environment: The PMDA is clarifying requirements and approaches for CMC and platform-based development, maintaining ongoing dialogue, and putting in place practical processes for vaccine strain updates. Clinical-trial activity is progressing toward a balance between domestic patient enrolment and integration into global development.

Talent and public-private collaboration: With public support from programmes such as AMED and SCARDA, academia-industry collaboration is active. Licensing and co-development with overseas partners continue, alongside the training and mobility of mRNA specialists.

Strengths and challenges: Japan's strengths include quality-focused manufacturing capabilities and established clinical-trial infrastructure. Ongoing challenges include stable supply and domestic sourcing of raw materials, cost competitiveness and IP/international regulatory compliance, making continued capacity building through public-private efforts important.

Cooling Western Enthusiasm and APAC's Advantage

While the United States pioneered mRNA technology, cooling enthusiasm for COVID-19 vaccines and shifts in funding priorities have raised questions about whether this pullback could ripple across the Asia-Pacific. Experts, however, believe the uncertainty in some Western markets gives APAC an opportunity to accelerate.

As Dr Gisela Mautner, CEO, Noxopharm said, "The ongoing uncertainty around RNA-based technologies in some parts of the world represents a significant opportunity for our region to build a global leadership position via a sustainable industry backed by world-leading research and collaboration."

Dr Wan Yue agrees, "I think this presents an amazing opportunity for Asia to double down on RNA research, attract the best RNA scientists and mRNA companies to the region, and translate our understanding of RNA into better engineered RNA products, not only for Asian populations but also for the rest of the world. Our current understanding of how mRNAs can be used in medicine is just the tip of the iceberg, and Asia has an opportunity to become a world leader in RNA medicines."

That opportunity is not limited to science alone. Stable policy frameworks and public investment are increasingly seen as competitive advantages. "We also have the opportunity to attract investment from all around the world by offering a stable and supportive framework in which to invest in these technologies. We have seen this here in Australia already, with the federal government developing a national RNA Blueprint and also investing in new mRNA facilities alongside state governments. Such strategic policies are an example of how the sector can be grown in the years ahead, supporting the development of an ecosystem that develops new drugs, vaccines and manufacturing capabilities to benefit all citizens," said Dr Mautner.

Political dynamics elsewhere, experts argue, do not undermine the underlying science. "The science, safety and efficacy of mRNA technology is generally well established. Although mRNA seems to be

caught in political culture wars in the United States, that does not change the science and we need to forge ahead. The APAC region has a great opportunity to be world-leading in mRNA innovation and application beyond infectious diseases,” said Professor Archa Fox.

Experts also emphasise that collaboration and coordination will be critical to sustaining momentum across the region. “Any measures that promote regional collaboration in this field should also be encouraged, whether from an investment or drug development perspective, as such approaches will spur further growth and help ensure the most promising technologies have the greatest chance of success. We also believe governments in general should be active in promoting RNA technologies to local populations, helping educate people about the numerous benefits these platforms will deliver.” said Dr Mautner.

There is also a need for governments across APAC to work together more closely, particularly on regulation and development pathways. “The missing element is a coordinated effort by governments across APAC borders. We should come together to use the power of mRNA to tackle the clear regional health challenges that we face such as higher prevalence of certain cancers, chronic diseases and tropical and emerging pathogens. Coupled to this is a greater need for innovation and harmonisation in regulatory approaches, to really take advantage of what mRNA can offer in terms of rapid design and manufacture for mRNA.” said Professor Archa Fox.

The APAC mRNA market is already worth \$2.32 billion. It is expected to reach \$7.40 billion by 2030, according to Grand View Research. Countries across the region are racing to secure a larger share through advances in science, manufacturing, and policy.

Fuente: BioSpectrum Asia. Disponible en <https://n9.cl/h2yz7>

MHRA approves zapomeran (Kostaive) mRNA COVID-19 vaccine

Jan 4. As with any medicine, the MHRA will keep the safety and effectiveness of zapomeran under close review.

The Medicines and Healthcare products Regulatory Agency (MHRA) has approved zapomeran (Kostaive) mRNA COVID-19 vaccine, developed by Arcturus Therapeutics, for the immunisation of individuals aged 18 years of age and older.

Zapomeran is given as a single 0.5 mL booster dose by injection into the muscle of the upper arm. It contains a self-amplifying messenger RNA (sa-mRNA) which instructs the body's cells to temporarily make the SARS-CoV-2 spike protein. This teaches the immune system to fight off the virus in the future.



Julian Beach, Interim Executive Director of Healthcare Quality and Access at the MHRA, said:

- ⇒ Patient safety is our top priority.
- ⇒ The approval of zapomeran (Kostaive) provides an alternative vaccine for use in adults to prevent COVID-19 caused by SARS-CoV-2.
- ⇒ As with all licensed medicines, we will continue to monitor its safety closely as it becomes more widely used.

Very common side effects (which may affect more than 1 in 10 people) include pain or tenderness at the injection site, tiredness, chills, fever, muscle and joint pain, headache and dizziness. Most side effects are mild and disappear within a few days of vaccination.

A full list of side effects can be found in the Patient Information Leaflet (PIL) or the Summary of Product Characteristics (SmPC), which will be published on the MHRA website within 7 days of approval.

As with any medicine, the MHRA will keep the safety and effectiveness of zapomeran under close review. Anyone who suspects they are having a side effect from this medicine is encouraged to talk to their doctor, pharmacist or nurse and report it directly to the MHRA Yellow Card scheme, either through the website (<https://yellowcard.mhra.gov.uk>) or by searching the Google Play or Apple App stores for MHRA Yellow Card.

Fuente: GOV.UK. Disponible en <https://n9.cl/yobjy>

What are the biggest vaccine breakthroughs coming in 2026? We asked five experts

Jan 5. From mRNA to HIV, we asked five vaccine leaders to share the advances they believe will shape global health in 2026.

Maria Elena Bottazzi

Co-Director of the Texas Children's Hospital Center for Vaccine Development at Baylor College of Medicine in Houston, US.

As we move into 2026, the vaccine development landscape is entering a period of remarkable transformation driven by scientific breakthroughs and global collaboration.

Messenger RNA (mRNA) platforms are expanding beyond their initial applications, opening new possibilities for neglected and emerging infectious disease prevention and even therapeutic interventions. At the same time, recombinant protein technologies and viral vectors continue to be prioritised, offering scalable and cost-effective solutions.

Innovations in vaccine adjuvant and delivery mechanisms – such as targeting the body's mucosal surfaces (for example the nose, mouth or lungs) and using needle-free patch-based technologies – are poised to enhance immune responses and improve accessibility, particularly in resource-limited settings.



“The coming year offers a chance not only to advance science, but to redefine how we deliver impact at scale – building a vaccine ecosystem that is innovative, equitable and globally connected.”

Meanwhile, controlled human infection models, in which carefully monitored volunteers are safely exposed to a pathogen, are accelerating early proof-of-efficacy studies, while artificial intelligence is

revolutionising vaccine development by helping scientists identify promising targets and design smarter, more flexible clinical trials, enabling unprecedented precision and efficiency.

Equally important are the systemic changes shaping vaccine access and sustainability.

Partnerships with the Developing Countries Vaccine Manufacturer Network are strengthening global supply chains, and manufacturing capacity is expanding significantly in Africa and Latin America – critical steps toward regional self-reliance and resilience. New frameworks for combination vaccines and strategies to establish clear value propositions will help align policy, economic and demand considerations. I view these global trends as an opportunity to ensure that innovation reaches the most vulnerable populations.

The coming year offers a chance not only to advance science, but to redefine how we deliver impact at scale – building a vaccine ecosystem that is innovative, equitable and globally connected.

Beate Kampmann

Director of the London School of Hygiene & Tropical Medicine's MRC Unit The Gambia, and Scientific Director of the Charité Centre for Global Health at Charité – Universitätsmedizin Berlin.

In 2026, further implementation of the safe and effective pre-F fusion vaccine against respiratory syncytial virus (RSV), which is administered to pregnant women and protects young infants, should be a priority.



“The pre-F fusion RSV vaccine safely transfers protective antibodies from mothers to babies before birth, protecting them during their most vulnerable period and reducing serious illness and hospital strain.”

RSV is a common respiratory virus that can cause severe lung infections and hospitalisation in young infants, especially in the first months of life.

The pre-F fusion RSV vaccine safely transfers protective antibodies from mothers to babies before birth, protecting them during their most vulnerable period and reducing serious illness and hospital strain.

Clinical trials showed efficacy results of over 80% protection from severe RSV in the first few months of life and, following large implementation studies from several high-income countries, we can now be confident that this also holds up in real life without any safety concerns.

I am happy to see that Gavi recognises RSV as a priority and supports introducing maternal vaccines in low- and middle-income countries where RSV mortality is highest. I now look forward to the action.

Gagandeep Kang

Director of Enterics, Diagnostics, Genomics and Epidemiology at the Gates Foundation

Going from a tough year in global health into 2026, we have a lot to look forward to for enteric vaccines – designed to protect against illnesses affecting the gastrointestinal tract.

The Gates Foundation has invested for a while in supporting Biovac, a South African company,

directly to develop oral cholera vaccines and in bringing technical and financial partners together to provide further support for what will be the first end-to-end vaccine development programme in Africa.

With successful early-phase testing and regulatory approvals, Biovac's clinical partners will be recruiting for a phase 3 trial in 2026. This is important not just for the company, but also for the increasingly strong South African regulatory system, as it builds its abilities in making and testing vaccines.

“Enteric disease morbidity is a marker of inequity around the world and the more ‘diarrhoea wards’ that close, the better we are doing for the most vulnerable children.”

In 2025, we saw the publication of remarkable rotavirus vaccine effectiveness data from India with the Indian-made Rotavac vaccine.

In 2026, we should get results from the second Indian vaccine, Rotasiil. These are two of the three WHO-prequalified vaccines that supply Gavi-eligible countries, so this data demonstrates the high impact that rotavirus vaccines have where they are most needed.

In late 2026, we will see the first results from an ongoing study in Pakistan that is testing whether adding a booster dose of oral rotavirus vaccine at nine months increases protection in the second year of life.

Enteric disease morbidity is a marker of inequity around the world and the more ‘diarrhoea wards’ that close, the better we are doing for the most vulnerable children.

Salim S Abdool Karim

Director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA)

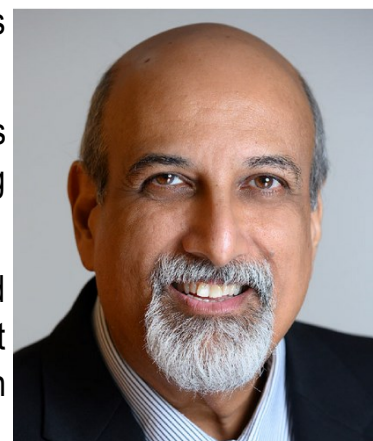
The development of an effective HIV vaccine remains an important goal in efforts to achieve an AIDS-free generation.

Following the unprecedented success of mRNA-based COVID-19 vaccines, this platform has become a central focus of HIV vaccine research, offering a promising approach to induce robust and targeted immune responses.

Its ability to rapidly deliver RNA sequences encoding protein immunogens via lipid nanoparticles is promising, though HIV's genetic diversity and the need to elicit broadly neutralising antibodies – necessary to prevent HIV infection – remain major challenges.

“The mRNA vaccine platform will also be tested... to see whether a vaccine could help keep the virus under control without daily medication.”

Current HIV vaccine research focuses on a germline-targeting approach, in which a sequence of specially designed vaccine components – given over several doses – are used to gradually guide the immune system toward making the rare, powerful antibodies needed to block HIV.



In simple terms, it works like a step-by-step training programme that helps the body develop the immune cells capable of producing these protective antibodies.

The mRNA platform has been prioritised for manufacturing of candidate HIV vaccines now in phase 1 trials, although early studies have noted some safety concerns, particularly skin reactions. Progress is expected to accelerate once these challenges are overcome.

A new phase 1 clinical trial, IAVI G004, planned for 2026, will test a booster designed to further strengthen the immune response toward developing broadly protective antibodies.

The mRNA vaccine platform will also be tested in studies where people pause their HIV treatment under close supervision, to see whether a vaccine could help keep the virus under control without daily medication as part of the quest for a cure. Despite this progress, an effective HIV vaccine is still out of reach, and no candidates have yet advanced to phase 3 trials. The landscape has also grown more complex after a recent study of Lenacapavir – a long-acting antiretroviral drug used for HIV prevention and treatment – showed 100% efficacy in African trial participants, setting a very high bar for any future vaccine to meet.

Because prevention tools are now so effective, upcoming HIV vaccine trials will need new approaches to show whether vaccines add meaningful benefit.

As a result, 2026 is likely to see the emergence of innovative clinical and regulatory strategies to help germline-targeting vaccines continue to move forward in a world with highly effective HIV prevention.

Dr Jerome H. Kim

Director General of the International Vaccine Institute in Seoul, Republic of Korea

In 2026, vaccines, technologies and stronger ecosystems are converging to expand access to vaccination and drive a more self-sufficient, resilient vaccine landscape.

On the technology front, the year could bring important advances for mRNA platforms, microneedle array patches and combination vaccines. These offer advantages for low- and middle-income countries through better thermostability, simpler delivery models and improved vaccine confidence by reducing pain and decreasing the number of injections required.

There is growing interest in developing vaccines that target high-burden pathogens driving antimicrobial resistance. At the same time, more evidence and updated policy recommendations stand to reshape how we think about life-course vaccination, with a focus on special populations including pregnant, school-age and elderly people.



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The year should also bring progress on the systemic enablers needed to translate these innovations into real-world gains. Regional end-to-end vaccine ecosystems are building local capacity, increasing production and access and transforming development away from a model of aid, and towards sovereignty and self-sufficiency.

The growing importance of locally produced vaccines for locally relevant infectious diseases is exemplified by Biovac's oral cholera vaccine entering a clinical trial – a first for end-to-end cholera vaccine production in Africa.

A renewed emphasis on the full value of vaccines is also needed globally in 2026, highlighting their role in sustaining health systems, protecting economies and enabling progress.

The International Vaccine Institute (IVI) is advancing many of these priorities and continued strategic investment – including support for enabling partners such as Gavi – will be crucial for ensuring that these new innovations reach populations, overcome market and systemic barriers, and deliver impact for the communities that need them most.

Fuente: GAVI. Disponible en <https://n9.cl/inuoo>

India's first dengue vaccine has been in the making for 17 yrs. DengiAll has the world excited

Jan 7. There are a few dates in his life that Dr Syed Khalid Ali remembers as significant ones, and 14 August 2024 is one of them. It was the day the first participant from Rohtak, Haryana, was enrolled in the Phase-III trials of one of Panacea Biotec's biggest ventures—India's first indigenous dengue vaccine.

As the Chief Scientific Officer of Indian biotech company Panacea Biotec, Khalid had worked with vaccines and preventative medicine his whole life. But the dengue vaccine—DengiAll—was a milestone not only for the company, but also for his country.

"DengiAll has been in the making for over 15 years, and it comes at a time when half the world's population is at risk of dengue," said Khalid. "There's no question about need. We needed such a vaccine yesterday."

In the brightly-lit conference room of Panacea Biotec's Delhi office, Khalid explained the unique challenge of creating a vaccine for dengue. In the past, only two dengue vaccines have ever been developed worldwide; only one is still in circulation. Studies have found these vaccines also have issues, as they don't protect against all four dengue types and have shown side effects in some people. A third, new dengue vaccine is the Butantan-DV vaccine by the Butantan Institute in Brazil, which received regulatory approval in November 2025, but has yet to begin production. It is the only one that comes close to DengiAll.

DengiAll will be the first vaccine to use attenuated dengue strains that target all four dengue types equally, and require only a single dose—changing the game of dengue prevention and offering more protection than any vaccine ever before.

The eyes of India and the world are on DengiAll, and consequently on the Delhi-based pharmaceutical company that is producing it. Having worked on the vaccine since 2008, Panacea Biotec is now tantalisingly close to success. Enrollment for Phase-III human trials at 20 locations across India is now complete, with support from the Indian Council of Medical Research.

"At the Panacea Biotec office, conversations around DengiAll are cloaked with an air of eagerness. With the human trials enrollment ending with over 10,000 participants, the company is waiting for approval."

“Dengue has puzzled scientists and immunologists for decades now. People infected with it can show anything from mild flu-like symptoms to even death,” explained Khalid. “A lot of it has to do with the serotypes of dengue, and how they interact with each other.”

DengiAll plans to enter the markets by 2027, as the first indigenous single-shot dengue vaccine in India and only the second in the world.

“Innovation is in the DNA of Panacea Biotec, and DengiAll represents that,” said Harshet Jain, a member of the board of directors at Panacea Biotec. “With dengue being a major concern, especially in the Global South, the social impact of our vaccine will be greater than ever.”

Why is a dengue vaccine significant?

At the Panacea Biotec office on Mathura Road, conversations around DengiAll are cloaked with an air of eagerness. With the Phase-III human trials enrollment & dosing now complete with over 10,000 participants, the company is now in the arduous waiting period for approval. It is the largest trial for DengiAll yet, and also the most robust—neither the participants nor the administrators knew which dose was the vaccine and which was the placebo.

In business since 1984, the scientists at Panacea are no strangers to being vaccine pioneers; the company made the world's first developers of a fully-liquid pentavalent vaccine that targets five diseases (tetanus, diphtheria, hepatitis B, HiB, whooping cough) in one shot. They were also India's first private manufacturers of the polio vaccine. With DengiAll, the company seeks a place on the world map.

In clinical terms, DengiAll is a live-attenuated, tetravalent, single-shot vaccine against dengue. In simple terms, it means that the vaccine is made from a mutated strain of the wild dengue virus, it protects against all four serotypes of dengue, and requires only one shot for a balanced and robust immune response.

The four subtypes of dengue are—DEN1, DEN2, DEN3 and DEN4—caused by aberrations in the same dengue (DENV) virus. These are known as serotypes, have more or less the same symptoms and are all transmitted through the female *Aedes aegypti* mosquitoes.

Interestingly, both Brazil's Butantan and India's DengiAll have the same origin—a mutated strain of dengue virus from the United States' National Institute of Health (NIH). This strain contains a weakened version of the dengue virus, offering protection against all four serotypes. In 2008, Panacea Biotec and Butantan Institute were the first companies to license the strain developed by the US and bring it back to manufacture it as a vaccine in their respective countries. Now, both companies are close to the finish line.

Given how dengue behaves in nature, each of these characteristics of DengiAll is a milestone for the vaccine, and builds confidence in its ability.

A virus that is transmitted through mosquitoes, the most common symptoms of dengue are fever, nausea, and flu-like symptoms. Severe dengue, however, can even cause blood haemorrhage and is a life-threatening disease.

“The catch is— if you get infected with one serotype, you're only protected from that one type. You can very likely get infected with dengue again, with another serotype,” said Khalid. “In fact, the second infection is more likely to be severe, even life-threatening.”



How DengiAll changed the game

Vaccines are a delicate science, but have some broad principles. Most vaccines are, more or less, a weakened or mutated version of the original virus that causes the disease. The virus is weakened enough not cause any disease but still induces a protective immune response. By injecting this virus into the body, the vaccine makes the body familiar with the disease, thus building immunity to it through antibodies.

The game changes when it comes to dengue, though.

If a person is infected with DENV1 (dengue 1 serotype) virus, they develop antibodies in their immune system to counter it. These antibodies would protect them from getting the DENV1 virus again by fighting the virus and not letting it enter the bloodstream. However, if the same person is infected with DENV-2, DENV-3, or DENV-4 virus, these antibodies will make that virus stronger and increase the severity of the disease. This phenomenon is known as ‘antibody-dependent enhancement.’

“Sometimes instead of protecting you against the virus, the antibodies tend to bind together with the virus to attack you even harder,” said Dr Lalitendu Mohanty, Vice President – Clinical Research & Strategic Medical Affairs, Panacea Biotec. “And these antibodies can come from either a previous infection or a vaccine.”

But for a disease that has no cure, there is no option but to prevent it using vaccines.

“If your vaccine only protects you against one type of dengue, it puts you at risk of severe infection from the other types,” said Mohanty. “So, partial immunity could actually be life-threatening in the case of dengue.”

For diseases like COVID-19, tetanus, and measles, even getting one shot of a two-dose vaccine protects against the disease as it provides partial immunity. But for dengue, that’s not always the case. Developing partial immunity might worsen the body’s ability to tolerate the disease. This is why DengiAll was made with the precision to counter all four types of dengue, and Panacea Biotec designed it to just require one shot.

Before this, the two main dengue vaccines were Dengvaxia by the French company Sanofi Pasteur, which was released in 2015, and Qdenga by the Japanese company Takeda, released in 2022.

Dengvaxia was the first-ever dengue vaccine to be released in the world, but a few years after its rollout, it was found that the vaccine increased the risk of severe dengue for people who had never had dengue in their lives. It was only effective in people that have previously been exposed to dengue. Major controversies erupted in countries like the Philippines, where the rollout of the vaccine and its subsequent issues led to widespread vaccine hesitancy in people. Sanofi announced that it would stop manufacturing Dengvaxia by 2025, due to low demand.

Qdenga is the only one still available in the market, but it does require two shots, and it uses a genomic backbone of only DENV-2 dengue serotype, with structural proteins from DENV-1, DENV-3, and DENV-4. Takeda claims that its vaccine provides efficacy against all four serotypes.

“Even though there were two existing dengue vaccines in the market, there was still an unmet need for single dose vaccine with a balanced immune response across serotypes,” said Mohanty. “This is where DengiAll comes in.”

Making DengiAll

Panacea Biotec has been working on developing a dengue vaccine since 2002.

“There are different types of vaccines—live, live-attenuated, inactivated, virus-like particle, mRNA, whole cell—depending on how the pathogen is treated for the most effective results,” explained Jain. “From 2002 to 2008, we tried building many variations of the dengue vaccine.”

When the research team at Panacea Biotech heard about the US National Institutes of Health's NIAID creating a new weakened strain of dengue vaccine, they jumped at the opportunity. Panacea Biotech was one of the first companies to put in a bid for the strain and the second to receive it in the world. A virus strain is the base of a vaccine, which is then developed and synthesised further to make it ready to be administered.

"The NIH vaccine strain was novel, but it had a few drawbacks. It could only be stored in -60 to -70 degrees temperature, which is not viable in a country like India," explained Khalid. "Our job was to make this strain into a viable vaccine by ensuring its components remain the same, and that it doesn't have adverse effects on the human body."

Across multiple laboratory tests, animal trials, and human trials over 17 years, the scientists at Panacea Biotech made DengiAll fit for the public. Now, it can be stored at the regular 2-8 degrees Celsius temperature, like other vaccines, and they've developed and patented the formula to mass-produce the vaccine. Their initial Phase-1 and Phase-2 trials also showed 77-82 per cent protection against all four types of dengue.

For Phase-III, they decided to approach the Indian Council of Medical Research (ICMR) for the government's support and credibility.

"ICMR had the strength and footprint that a dengue vaccine needs, given its national significance," said Khalid. "We want them to verify our product and put their trust in us. And we were confident our vaccine could match their standards."

While phase-III clinical trials can take anywhere between six months and three years, Panacea Biotech decided to err on the side of caution for DengiAll. Every participant, after being injected, will be followed for a period of two years to see whether the vaccine worked effectively.

Panacea may not have to wait until 2027 to find out whether its product is successful or not. As per the Drug Controller General of India (DCGI) protocol, when the trial gets 124 confirmed cases of dengue, Panacea Biotech can go in for an interim analysis to check the vaccine's efficacy and seek clinical approval.

According to experts like Dr Nimesh Gupta from the National Institute of Immunology, though, verifying DengiAll works equally well against all four serotypes of the disease may take much longer.

To accurately test that the DengiAll vaccine protects against all four serotypes in real life, the participants in the trial need to be exposed to all of the serotypes. However, this will depend on natural dengue outbreaks and the number of serotypes circulating in a region and in the country as a whole.

"No one can predict which serotype of dengue is naturally occurring in nature and when," he explained on a call with ThePrint. "It is unlikely to happen in two to three years, since it depends entirely on nature, seasons and disease circulation."

While acknowledging the positive results of Phase-I and Phase-II trials of DengiAll, Gupta also cautioned that Phase-III will be the ultimate test of both efficacy and immunogenicity. Waiting for all four serotypes of dengue outbreaks and testing against them all will require time and patience, he said.

Dengue's global impact

The 9th Lancet Countdown Report on Health and Climate Change, released in October 2025, flags dengue as one of the diseases whose transmission potential has increased due to climate change. With global climatic conditions changing, there's been a spread of aedes mosquitoes habitats', and dengue is increasingly becoming a problem even in the Global North. In 2024, 14 million cases of dengue were reported worldwide. This number is only set to increase.

Panacea Biotec is aware of how its vaccine could upend the global capability to deal with dengue. Given the previous track record of dengue vaccines, the pressure is imminent to make it fast and make it right.

“We’ve put in years of our work into developing this vaccine. Now, whatever happens at the trials and however long it takes to get approval, we know it is out of our control,” said Mohanty.

Even as they wait for the trial to take its natural course, the Panacea team is ready to jump in the moment they get enough dengue cases to begin the interim analysis of their products.

“We know things take time, but we also know that we won’t waste a single second in taking this vaccine to the masses,” said Khalid. “Over 10,000 people die every year from dengue, and every day we delay, we’re denying them their life.”

Fuente: The Print. Disponible en <https://n9.cl/8t4np>

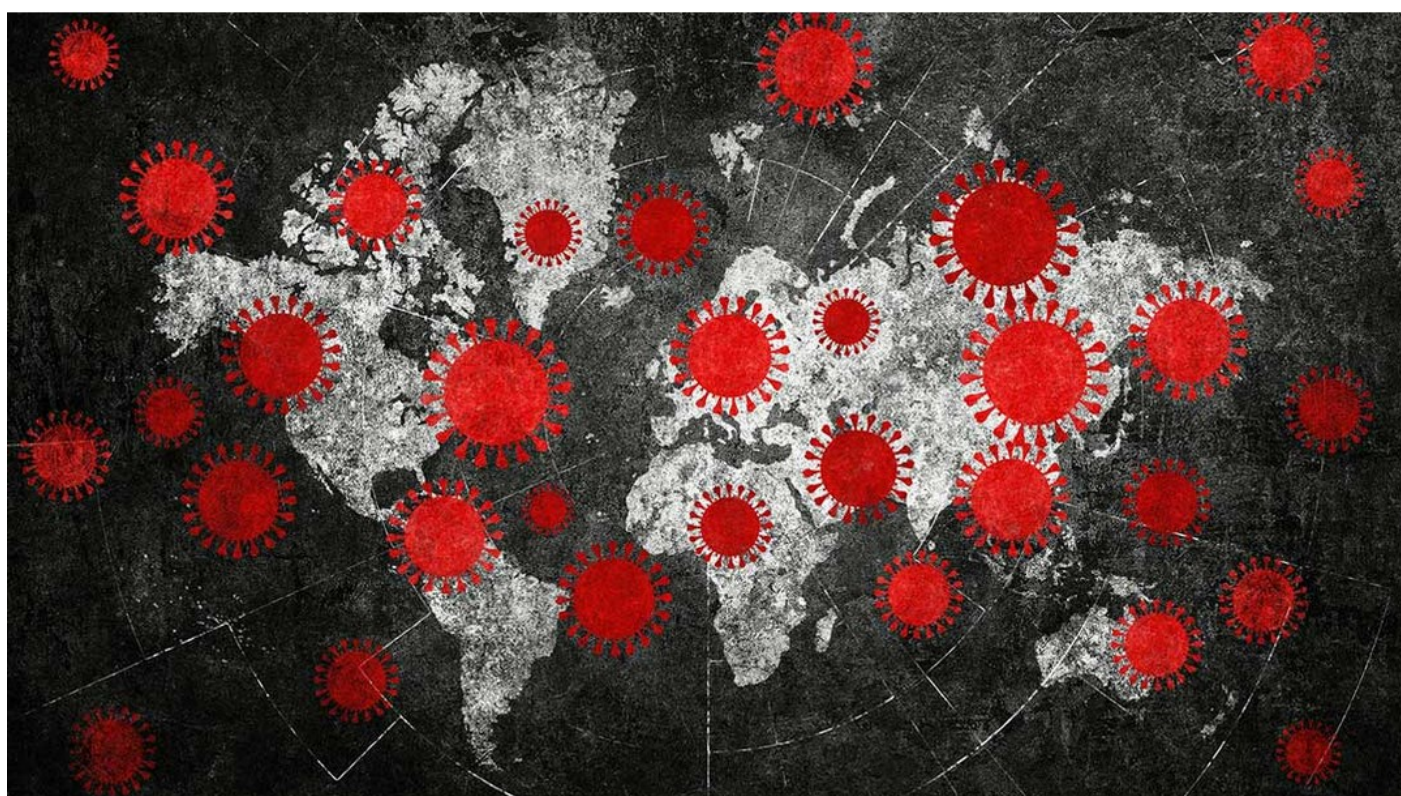
Viral outbreaks are always on the horizon – here are the viruses an infectious disease expert is watching in 2026

Jan 8. A new year might mean new viral threats. Old viruses are constantly evolving. A warming and increasingly populated planet puts humans in contact with more and different viruses. And increased mobility means that viruses can rapidly travel across the globe along with their human hosts.

As an infectious diseases physician and researcher, I’ll be keeping an eye on a few viruses in 2026 that could be poised to cause infections in unexpected places or in unexpected numbers.

Influenza A – on the cusp of a pandemic

Influenza A is a perennial threat. The virus infects a wide range of animals and has the ability to mutate rapidly. The most recent influenza pandemic – caused by the H1N1 subtype of influenza in 2009 – killed over 280,000 people worldwide in its first year, and the virus continues to circulate today. This virus was often called swine flu because it originated in pigs in Mexico before circulating around the world.



Viruses know no borders. mammuth/iStock via Getty Images Plus

Most recently, scientists have been monitoring the highly-pathogenic avian influenza H5N1 subtype, or bird flu. This virus was first found in humans in southern China in 1997; wild birds helped spread the virus around the world. In 2024, the virus was found for the first time in dairy cattle in the U.S. and subsequently became established in herds in several states.

The crossover of the virus from birds to mammals created major concern that it could become adapted to humans. Studies suggest there have already been many cow-to-human transmissions.

In 2026, scientists will continue to look for any evidence that H5N1 has changed enough to be transmitted from human to human – a necessary step for the start of a new influenza pandemic. The influenza vaccines currently on the market probably don't offer protection from H5N1, but scientists are working to create vaccines that would be effective against the virus.

Mpox – worldwide and liable to worsen

Mpox virus, formerly called monkeypox virus, was first discovered in the 1950s. For many decades, it was seen rarely, primarily in sub-Saharan Africa. Contrary to its original name, the virus mostly infects rodents and occasionally crossed over into humans.

Mpox is closely related to smallpox, and infection results in a fever and painful rash that can last for weeks. There are several varieties of mpox, including a generally more severe clade I and a milder clade II. A vaccine for mpox is available, but there are no effective treatments.

In 2022, a global outbreak of clade II mpox spread to more than 100 countries that had never seen the virus before. This outbreak was driven by human-to-human transmission of the virus through close contact, often via sex.

While the number of mpox cases has significantly declined since the 2022 outbreak, clade II mpox has become established around the world. Several countries in central Africa have also reported an increase in clade I mpox cases since 2024. Since August 2025, four clade I mpox cases have occurred in the U.S., including in people who did not travel to Africa.

It is unclear how mpox outbreaks in the U.S. and abroad will continue to evolve in 2026.

Oropouche virus – insect-borne and poised to spread

Oropouche virus was first identified in the 1950s on the island of Trinidad off the coast of South America. The virus is carried by mosquitoes and small biting midges, also known as no-see-ums.

Most people with the virus experience fever, headache and muscle aches. The illness usually lasts just a few days, but some patients have weakness that can persist for weeks. The illness can also recur after someone has initially recovered.

There are many unanswered questions about the Oropouche virus and the disease it causes, and there are no specific treatments or vaccines. For decades, infections in people were thought to occur only in the Amazon region. However, beginning in the early 2000s, cases began to show up in a larger area of South America, Central America and the Caribbean. Cases in the United States are usually among travelers returning from abroad.

In 2026, Oropouche outbreaks will likely continue to affect travelers in the Americas. The biting midge that carries Oropouche virus is found throughout North and South America, including the southeastern United States. The range of the virus could continue to expand.

Even more viral threats

A number of other viruses pose a risk in 2026.

Continuing global outbreaks of chikungunya virus may affect travelers, some of whom may want to consider getting vaccinated for this disease.

Measles cases continue to rise in the U.S. and globally against the backdrop of decreasing vaccination rates.

HIV is poised for a resurgence, despite the availability of effective treatments, due to disruptions in international aid.

And as-yet-undiscovered viruses can always emerge in the future as humans disrupt ecosystems and travel around the world.

Around the world, people, animals and the wider environment are dependent on each other. Vigilance for known and emerging viral threats and the development of new vaccines and treatments can help keep everyone safe.

Fuente: GAVI. Disponible en <https://n9.cl/2eh4ah>

Innovations Shaping the Future of Viral Vector Manufacturing

Jan 8. Viral vectors are a key component of many advanced gene therapies and vaccines, but reliable, large-scale manufacturing remains a significant challenge. Continued innovation in vector design, cell line development and manufacturing strategies is essential to enable consistent, high-quality production at scale.

Earlier this year, ReiThera highlighted progress across multiple viral vector platforms at the European Society of Gene and Cell Therapy (ESGCT) Annual Congress, including the ReiCell-AAV platform for scalable adeno-associated viruses (AAV) production and the non-human primate adenoviral vector GRAd32.

Technology Networks (TN) spoke with Claudio Panzarella (CP), head of business development, and Angelo Raggioli (AR), head of technology development at ReiThera, to learn more about these platforms, the advantages they offer over conventional approaches and the emerging manufacturing and innovation trends discussed at ESGCT 2025.

TN: What are the most significant bottlenecks facing viral vector manufacturing today?

CP: Today, viral vector manufacturing faces three main bottlenecks: scalability, regulatory complexity and supply chain continuity. Technically, scaling from research to GMP production while maintaining yield and quality is still challenging, especially for complex vector platforms.

Regulatory frameworks are evolving rapidly, requiring continuous adaptation and harmonization across regions.

Logistically, sourcing critical materials and maintaining cold-chain integrity add pressure on timelines and costs.

At ReiThera, we tackle these challenges by developing robust, scalable processes, strengthening our quality systems and implementing integrated logistics to ensure efficiency from development to commercial manufacturing.



TN: Can you tell us more about ReiCell-AAV and the advantages it offers over conventional platforms?

CP: ReiCell-AAV is ReiThera's proprietary suspension cell line developed specifically for high-yield AAV vector production. It was designed to overcome some of the key limitations of traditional adherent or HEK293-based systems, such as scalability constraints and process variability.

The platform offers several advantages: it supports robust growth in suspension, enabling seamless scale-up from laboratory to large bioreactor volumes; it provides consistently high vector productivity across multiple serotypes; and it is fully compatible with serum-free, chemically defined media, which improves reproducibility and regulatory compliance.

Combined with ReiThera's optimized upstream and downstream processes, ReiCell-AAV delivers a more efficient, scalable and GMP-ready solution for gene therapy developers aiming to accelerate clinical and commercial manufacturing.

TN: What are the main advantages of using a non-human primate (NHP) vector, and how does GRAd32 fit into emerging vaccine or gene therapy strategies?

(AR): There are two main advantages in using a NHP vector, namely the manufacturability and the immunological potency.

From a manufacturing standpoint, Ad5-based vectors share sequence homology with the packaging cell line, which can lead to the generation of replication-competent adenoviruses (RCA) and potentially result in the rejection of manufactured batches. GRAd32 genomic sequences reduce the risk of RCA formation during production in HEK293 cells, providing a critical biosafety and process reliability advantage.

In addition, GRAd32 is supported by a validated analytical platform, which ensures full control over product quality and regulatory compliance at both small (pre-clinical) and large (clinical) scale. This end-to-end ownership strengthens process robustness and scalability across development and commercial manufacturing.

From a potency standpoint, human adenoviral vectors, such as Ad5, are well known for their strong immunogenicity; however, the widespread pre-existing immunity to Ad5 in humans can markedly reduce their potency.

In contrast, NHP-derived adenoviral vectors, including the gorilla-derived GRAd32, overcome these limitations due to their low seroprevalence in humans, thereby preserving full immunological potency.

Traditional vaccinology has primarily aimed to prevent infection through the induction of neutralizing antibodies. However, the COVID-19 pandemic has clearly shown that vaccine efficacy does not necessarily depend on preventing infection – which is largely antibody-mediated – but also on preventing severe disease, a protection mainly driven by CD8⁺ T cell immunity.

In this context, GRAd32 fits well into emerging vaccine strategies, as it consistently induces potent, broad and durable CD8⁺ T cell responses, potentially superior not only to other adenoviral platforms but also to mRNA-based vaccines.

Looking ahead in the gene therapy field, the low seroprevalence and reduced liver tropism of GRAd32 make it a promising vector for in vivo applications targeting disseminated diseases, while avoiding the liver sequestration typically associated with Ad5-based vectors.

TN: At ESGCT 2025, what discussions or emerging themes stood out to you around viral vector innovation and manufacturing? Did anything surprise you or shift your perspective?

CP: At ESGCT 2025, we saw strong momentum toward next-generation viral vector platforms designed for scalability, manufacturability and patient accessibility. There's a clear shift toward process intensification and the adoption of stable producer cell lines to make AAV and adenoviral manufacturing more efficient.

What stood out most is that innovation in viral vectors is increasingly focused not only on scientific progress, but on building scalable and sustainable systems that can deliver advanced therapies to patients faster.

TN: Looking ahead, what innovations or changes do you believe will define the next wave of viral vector manufacturing?

AR: I believe the next wave of viral vector manufacturing will be defined by three major innovations: scalability, precision and accessibility.

First, we will see a strong shift toward scalable and cost-efficient production systems, driven by the need to make gene therapies and advanced vaccines more accessible. This includes stable producer cell lines, cell-free or continuous manufacturing and automation with real-time process monitoring to ensure consistency and reduce cost of goods.

Second, the integration of AI, ML and digital twins will profoundly reshape process development. AI can use large, multimodal datasets from manufacturing and analytical systems to predict optimal process parameters, detect deviations in real time and guide adaptive control strategies.

ML-based tools are already being used to optimize cell culture conditions, analyze metabolic patterns and forecast harvest points, while digital twins enable model-predictive control that reduces experimental burden and accelerates process understanding.

Finally, we can expect growing emphasis on platform flexibility and standardization, enabling manufacturing processes to be rapidly adapted from one product to another – much like what has occurred in mRNA vaccine production.

Fuente: Technology Networks. Disponible en <https://n9.cl/ddez25>

Monsanto Patent Suits Challenge mRNA Vaccine Foundations

Jan 8. Bayer's Monsanto Sues Pfizer, BioNTech, Moderna Over mRNA

A major legal confrontation has erupted in the pharmaceuticals sector as Bayer's Monsanto unit files patent infringement lawsuits against the dominant developers in the COVID-19 vaccine market: Pfizer, BioNTech, and Moderna. The lawsuits, filed in Delaware federal court, allege these companies improperly utilized foundational mRNA stabilization technology originally pioneered by Monsanto for agricultural applications in the 1980s.

A Legal Challenge Rooted in Agricultural Innovation

The complaints center on intellectual property developed decades ago, asserting that the scientific approach used to stabilize messenger RNA in crops forms the technological bedrock for today's groundbreaking vaccines. According to the filing, Monsanto scientists in the 1980s pioneered methods to reduce mRNA instability to create more pest-resistant crops—technology Bayer claims has been directly copied to stabilize the genetic material in COVID-19 vaccines.

Bayer has taken similar legal action in a New Jersey federal court against Johnson & Johnson, arguing that a

DNA-based process used in manufacturing its now-discontinued shot infringes on Monsanto's patent. The company clarified it is not seeking to halt vaccine production but is pursuing unspecified monetary damages for the alleged infringement.

Industry Response and Broader Patent Landscape

Moderna has acknowledged the lawsuit, stating it will defend itself against the claims. Spokespeople for Pfizer, BioNTech, and Johnson & Johnson had not immediately responded to requests for comment. This litigation adds complexity to an already intricate web of patent disputes surrounding COVID-19 vaccines, including an ongoing case Moderna filed against Pfizer and BioNTech in 2022.

Despite the blockbuster status of the vaccines, with Pfizer/BioNTech's Comirnaty generating over \$3.3 billion in 2024 revenue and Moderna's Spikevax earning \$3.2 billion, these figures represent a significant decline from peak pandemic sales. Johnson & Johnson ceased selling its COVID-19 vaccine in the United States in 2023.

Next Move Strategy Consulting – Market Analysis

This legal development represents a significant inflection point for the biotechnology and pharmaceutical sectors. The outcome of these lawsuits could establish critical precedents for intellectual property rights surrounding foundational platform technologies, potentially influencing investment patterns, research and development priorities, and partnership models across the industry. A ruling favoring Monsanto may compel vaccine manufacturers and other biotech firms to reevaluate their freedom-to-operate analyses and licensing strategies, particularly for technologies with cross-sector applications. Conversely, a defense victory would reinforce the current innovation framework. Regardless of outcome, this litigation highlights the growing strategic value of historical patent portfolios and may accelerate industry consolidation as companies seek to bolster their intellectual property defenses in an increasingly competitive landscape.

Redefining Innovation Boundaries

As the pharmaceutical industry continues to evolve beyond the pandemic era, Monsanto's lawsuits underscore the complex interplay between historical research and contemporary medical breakthroughs. These cases will test the boundaries of patent protection across different application domains and could reshape how intellectual property rights are managed in an era of convergent technologies. The litigation's progression will be closely monitored for its potential to influence not only significant financial settlements but also the fundamental frameworks governing biotechnological innovation.

Fuente: Next Move Strategy Consulting NMSC. Disponible en <https://n9.cl/szs7a>

Virometix AG Announces Positive Data from Phase 1 Trial of V-212, a Fully Synthetic, Serotype-Independent Vaccine Development Candidate for the Prevention of Pneumococcal Disease

Jan 8. Virometix AG, a clinical-stage biotechnology company pioneering fully synthetic vaccines, today announced positive topline data from the Company's Phase 1 trial of its lead asset V-212, a serotype-independent pneumococcal vaccine candidate, in development for the prevention of pneumococcal disease caused by *Streptococcus pneumoniae* (Spn) infections. The study evaluated safety and immunogenicity in healthy volunteers, with data



demonstrating an excellent safety profile and robust immune responses across all three target antigens in the vaccine.

Results support further development of V-212 independently and in combination with an approved PCV.

“With the significant need for an effective serotype-independent vaccine, we are pleased to report positive results, which highlight the excellent safety profile and immunogenicity of V-212 and, more broadly, validate our Synthetic Virus-Like Particle (SVLP) platform approach for the development of broad-spectrum, self-adjuvanted vaccines with highly scalable manufacturing,” said Anna Sumeray, Chief Executive Officer of Virometix. “We believe that V-212 has the potential to overcome the inherent gaps in traditional PCV coverage as a fully synthetic, peptide-based, serotype-independent vaccine for the prevention of pneumococcal disease.”

The trial was a randomized, double-blind, placebo-controlled, first-in-human Phase 1 study conducted at the Centre for Vaccinology (CEVAC), Ghent University Hospital. V-212 was evaluated in 60 healthy volunteers aged 18–45. The primary and secondary objectives of the study were to assess the safety, reactogenicity and immunogenicity, of vaccination with V-212 administered three times at low, intermediate, and high dose levels compared with placebo. All serum IgG responses were quantified using an ELISA performed by an independent GLP-accredited third party laboratory.

Topline Phase 1 Results:

V-212 was well tolerated. Adverse events were predominantly mild to moderate in intensity, with a trend for increasing incidence of systemic reactogenicity with increasing dose level. The incidence of reactogenicity symptoms tended to decrease with subsequent vaccinations. No serious adverse events were reported.

Increases in geometric mean IgG titer (GMT) over baseline ranged from two to six fold across the three antigenic Spn epitopes. In the high dose group, at Day 120, increases in GMT over baseline for at least two of three epitopes were ≥ 2 fold in 14 of 15 (93%) subjects and ≥ 4 fold in 8 of 15 (53%) subjects. Increases in IgG titers after the second and third vaccinations were consistent with a boosting effect. No meaningful changes in IgG titer were observed in the placebo group.

“We are very encouraged by these data,” said Mark Sumeray, Chief Medical Officer of Virometix. “We observed robust increases in IgG titers against all three antigens in V-212 with evidence of a boosting response over time. The data provide a strong rationale for further development of V-212 both as an enhancement to the protective effects of existing PCVs as well as a stand alone vaccine.”

About V-212

V-212 is a fully synthetic, serotype-independent, peptide-based vaccine designed to prevent pneumococcal disease caused by *Streptococcus pneumoniae* (Spn) infections. The vaccine incorporates multiple conserved antigenic epitopes from key pneumococcal surface proteins conjugated to Virometix proprietary Synthetic Virus-Like Particle (SVLP) nanoparticles, which include built-in adjuvant elements such as T-helper epitopes and Toll-like receptor (TLR) ligands. This unique design eliminates dependence on biological carrier proteins and allows for a streamlined, fully synthetic manufacturing process. V-212 is currently being evaluated as an independent vaccine with plans to be evaluated in combination with an approved pneumococcal conjugate vaccine (PCV).

Fuente: AFP. Disponible en <https://n9.cl/mcsrdm>

The science powering the next wave of respiratory vaccines

Jan 9. As respiratory vaccines continue to place a substantial strain on healthcare systems worldwide, vaccine development has entered a new era.

This article examines the history of respiratory virus vaccines, how modified mRNA (modRNA) technology may overcome the limitations of existing vaccines, and the development of universal vaccines for influenza, COVID-19, and other viruses.

In addition, the paper outlines the crucial role human challenge trials will play in accelerating vaccine development and producing high-quality data. With its advanced facilities, profound scientific expertise, and a strong track record, hVIVO is uniquely positioned to support customers in navigating this new landscape and efficiently deliver cutting-edge vaccines to market.

1. modRNA vaccines are redefining respiratory virus prevention

A new era of vaccine development has been ushered in thanks to the success of modRNA vaccines during the COVID-19 pandemic.

Their capability for rapid design to target emerging strains, scalable manufacturing methods, and potential to enable universal protection (e.g., against all influenza strains) position them as a transformative platform for preventing respiratory viruses.



2. Human challenge trials can accelerate vaccine development

Conventional vaccine field trials are slow, expensive, and frequently produce low-quality data. In contrast, human challenge trials reduce time and expenses while generating robust viral load and symptomology data.

Another key advantage over field trials is the ability to evaluate efficacy against low-circulation virus strains, which frequently lead to seasonal vaccine mismatch and variable effectiveness.

3. hVIVO will be at the forefront of vaccine clinical development

hVIVO is a leader in vaccine and anti-viral clinical development due to its extensive experience and tailored quarantine site. Its human challenge models allow products to "succeed fast or fail fast," substantially minimizing risks and expenses.

Respiratory viruses remain a significant global health threat, challenging both public health systems and vaccine developers. This article examines the changing landscape of respiratory viral infection prevention, including the shortcomings of conventional vaccine platforms and the potential of modified messenger RNA (modRNA) technology.

It also highlights the transformative impact of human challenge trials and explains how hVIVO's specialist capabilities and expanded infrastructure position it at the forefront of vaccine development by accelerating trial results, generating high-quality data, and minimizing risk and expenses.

The global burden of respiratory viral infection

In 2025, respiratory viruses continued to pose significant challenges to global public health. Their tendency to mutate enables frequent immune evasion and high cross-species and human-human transmissibility which, coupled with their seasonality, has complicated the development of vaccines that provide broad (i.e., covering many or all strains of a virus) and lasting protection.

The need for annual vaccine updates creates a continuous economic burden while vaccine-strain match remains unreliable.

Influenza viruses exemplify these challenges.

Although current vaccines prevent millions of cases each year (around 9.8 million in the United States alone for the 2024/2025 season), influenza causes approximately one billion cases (including three to five million severe cases) of illness and between 290,000 and 650,000 global deaths annually.^{1,2}

Influenza viruses continually evade both acquired and vaccine-induced immunity through antigenic drift and occasional rapid antigenic shift.³ This requires constant surveillance and annual vaccine reformulation to counter prevalent and newly emerging strains.

Seasonal infection patterns, driven by climate, host behavior, and co-circulation with other respiratory pathogens, further complicate prediction and preparedness.⁴

The World Health Organization (WHO) Global Influenza Surveillance and Response System (GISRS) was founded in 1952 and now operates with networks across 130 WHO member states.⁵ GISRS holds biannual meetings, typically in February and September for the Northern and Southern hemispheres, respectively.

During these meetings, experts review epidemiological data, genetic and antigenic properties, and vaccine effectiveness before providing recommendations for strains to include in upcoming seasonal vaccines.

In February 2025, the latest recommendations for the Northern hemisphere were released.⁶ Regulatory authorities, including the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA), can modify which strains are included in their region, according to local epidemiological data.

Despite seasonal adjustments, emerging mutations frequently result in vaccine mismatch, leading to significant variability in influenza vaccine effectiveness by year and by region. Since the 2004/2005 season, influenza vaccine efficacy estimates in the United States have ranged from 10 % to 60 %.⁷

History of respiratory virus vaccines

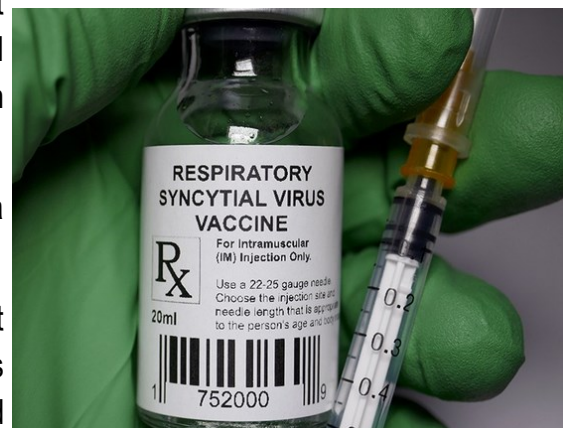
Until the recent emergence of modRNA vaccines, most respiratory virus vaccines have been either live attenuated vaccines (LAVs), where a live virus with reduced virulence is used to stimulate an immune response, or inactivated virus vaccines.

LAVs have been used since World War II and remain common today due to the stronger and more durable immunity they induce. More recently, intranasal administration (e.g., AstraZeneca's "Fluenz" influenza vaccine) has proven extremely useful for vaccinating children. Disadvantages of LAVs include contraindications in pregnant and immunocompromised individuals, and the risk of mutations into more virulent strains.

Inactivated virus vaccines involve administering all or part (e.g., split virions) of an inactivated or dead virus. The antigens from the inactivated virus cause a different and potentially weaker immune response than LAVs, often requiring several doses or the addition of adjuvants.

Inactivated virus vaccines, including Sanofi's quadrivalent influenza vaccine, are still used today due to their strong safety profile.

Both LAVs and inactivated virus vaccines work by introducing all or part of a virus to stimulate an immune response. Historically, these vaccines were manufactured in egg-based production procedures, which carried



the risk of supply chain issues. Egg-adaptation changes to the viruses are also known to increase vaccine mismatch and reduce effectiveness.

To address these challenges, cell-based (i.e., grown in a cell culture) vaccines emerged, offering faster and larger-scale manufacturing methods and allowing more efficient responses to emerging strains and potential pandemics.

Genetically engineered recombinant influenza vaccines entered the market in 2013. These vaccines are produced by synthesizing synthetic viral DNA (in the case of influenza, the DNA encoding the haemagglutinin [HA] protein) and inserting (recombining) it into the genome of the host virus. The host is then cultured to generate large quantities of the target protein, which is purified and formulated into the vaccine. Recombinant vaccines offer additional production efficiencies and have been demonstrated to trigger stronger immune responses than both egg- and cell-based vaccines.⁹

The arrival of modRNA vaccines

modRNA technology offers a significant opportunity for the development of new vaccines against influenza and other respiratory viruses. In contrast to conventional vaccines, which introduce viral antigens directly to stimulate an immune response, synthetic modRNA is delivered and then translated by the host cells to produce the viral antigen(s) encoded by the modRNA. The antigen(s) produced may then stimulate both humoral and cell-mediated immune responses.

Although modRNA has been studied as a therapeutic platform since the late 1980s, early development was limited by poor stability and undesirable innate immunogenicity through the activation of toll-like receptors.¹⁰

Breakthroughs in nucleoside modification in the early 2000s, (specifically, the development of pseudouridine, an analogue of uridine) enhanced modRNA stability and decreased these unwanted immunogenic effects.¹¹

The COVID-19 pandemic dramatically accelerated the approval of the first modRNA vaccines, highlighting their distinct advantages over conventional vaccine platforms: rapid development and scalable manufacturing. Once SARS-CoV-2 had been sequenced, researchers already working on modRNA rapidly designed SARS-CoV-2 vaccine candidates, and clinical trials began within months.

Within only one year of the virus' identification, the FDA/EMA authorized the emergency/conditional use of two mRNA vaccines (developed by BioNTech/Pfizer and Moderna). The cell-free production process of modRNA vaccines could be rapidly scaled up to address the huge demand created by the pandemic.

Initially, the modRNA vaccines, based on wild-type SARS-CoV-2 (Wuhan-Hu-1), demonstrated approximately 95 % efficacy in reducing symptomatic COVID-19.¹² As novel SARS-CoV-2 strains emerged, protection against severe disease remained high; however, overall vaccine efficacy began to decline.

To counter dominant strains, formulations have undergone regular updates. The WHO Technical Advisory Group on COVID-19 Vaccine Composition has recommended both bivalent and monovalent vaccines in the years since.

The future of respiratory virus vaccines

The remarkable success of modRNA vaccines against SARS-CoV-2, prompted the rapid development of other modRNA vaccines. Last year, the FDA approved mRESVIA, a modRNA vaccine encoding the respiratory syncytial virus [RSV] fusion [F] protein, for use in adults aged 60 years and older.

modRNA vaccines for cytomegalovirus and Epstein-Barr virus are also in the early stages of development.

modRNA technology offers an opportunity for the development of universal vaccines (i.e., a vaccine that protects against all strains of a virus) by targeting conserved antigens (e.g., the HA stem, instead of the variable head). Universal modRNA vaccines for influenza and coronavirus, as well as a combined influenza and SARS-CoV-2 candidate, are currently under investigation in Phase 3 studies, with hopes for approval next year.

If universal modRNA vaccines prove effective against influenza and coronavirus variants, the 2020s could be defined as a new era in vaccine development. Eliminating the need for seasonal vaccine reformation, combined with the inherent production advantages of modRNA vaccines, could significantly reduce the economic burden of these diseases.

Universal vaccines have the potential to eradicate certain diseases in humans or at least eliminate their incidence in vaccinated populations. However, modRNA vaccines are not without drawbacks. Challenges include increased reactogenicity and shorter immunity duration compared with other vaccine types. Current ultra-cold storage requirements complicate distribution; manufacturers will no doubt concentrate on enhancing storage conditions to enable easier, cheaper, and more ubiquitous distribution.

Accelerating vaccine development with human challenge models

At this pivotal time for vaccines, clinical development strategies must be optimized and up to date with the latest advances. Conventional vaccine field trials, which involve vaccinating large cohorts of participants and observing them over extended periods, can be an expensive and inefficient gamble for vaccine candidates.

These studies also suffer from low-quality data outputs (e.g., using proxy endpoints of influenza-like illness rather than more specific and comprehensive viral load assessments). Field trials struggle to evaluate efficacy against low-circulation strains, and the seasonality of respiratory viruses prevents adequate assessment of efficacy before vaccines are deployed.

Human challenge trials (HCTs), also known as controlled human infection models (CHIMs), involve the deliberate exposure of participants to the pathogen being studied with or without a test treatment or vaccine. Participants are monitored in a controlled environment during the predicted course of disease to evaluate infection rates, viral load, and symptomology.

The origins of HCTs date back to 1796, when Edward Jenner inoculated a young patient with cowpox. The patient later demonstrated immunity to smallpox, which causes more severe disease than cowpox, and the experiment ultimately laid the foundation for the concept of vaccines.

Since then, HCTs have advanced substantially, adapting to contemporary ethical standards and regulations. They have contributed to the development of vaccines for diseases such as influenza, dengue, norovirus, malaria, cholera, typhoid, and RSV. HCTs deliver rapid and more comprehensive results.

By controlling study conditions, variability is reduced, and interference from other pathogens is avoided, enabling more accurate virological and immunological assessments. This allows for smaller sample sizes compared to conventional field studies, reducing both the cost and risk of early-stage vaccine development.

hVIVO's human challenge trials

hVIVO has an unmatched history in conducting HCTs. After conducting its first HCT in 2001, the company opened its first dedicated quarantine facility and associated laboratories in 2011.

Renewed interest in HCTs during the COVID-19 pandemic led the company to expand its facilities in 2021, including an HCT in 36 participants to characterize SARS-CoV-2.

Overall, hVIVO has challenged more than 5,000 participants with respiratory viruses and other pathogens. The company has established human challenge models for contemporaneous influenza A and B, RSV A and B, hMPV, human rhinovirus, and SARS-CoV-2. Its integrated specialist virology lab has validated qualitative and quantitative assays for each of these viruses, enabling seamless operations throughout their studies.

Last year, recent growth resulted in the opening of a flagship quarantine and lab site in Canary Wharf, London. The 50-bed quarantine site is certified to handle pathogens as high as biosafety level 3 (BSL3) and can support multiple pathogens simultaneously. hVIVO has the facilities and expertise to lead the way in this new era of vaccine innovation.

HCTs conducted by hVIVO can generate high-quality data efficiently, enabling vaccine and therapeutic candidates to succeed fast or fail fast. In addition, the company's timely results could support innovations in seasonal vaccine assessment and subsequent development. hVIVO can develop models and assays for rare virus strains, which will be indispensable for the evaluation and approval of universal vaccines.

hVIVO's expanded clinical trial and consultancy offering

Canary Wharf's on-site pharmacy, IMP facilities, and outpatient unit, together with hVIVO's dedicated project management and clinical teams, are primed and ready to accelerate vaccine and antiviral development. hVIVO's comprehensive participant database supports the rapid recruitment of healthy participants, including older populations, as well as patients with asthma or COPD.



In 2020, Venn Life Sciences, a specialist consultancy in early-phase clinical development, joined the hVIVO group (formerly Open Orphan). Venn's highly respected team of consultants has experience covering preclinical development, CMC, pharmacokinetics, statistics and methodology, data management, medical writing, quality assurance, and regulatory affairs. Close collaboration between Venn and hVIVO's clinical site teams ensures that clinical trials are executed to the highest scientific and regulatory standards.

In January 2025, hVIVO acquired CRS, an early-phase clinical research organization headquartered in Germany. This acquisition allowed hVIVO to use two clinical trial units and accompanying expert teams to expand its overall site offering into the EU. The sites specialize in first-in-human studies and complex pharmacokinetic and pharmacodynamic studies in patients with renal or hepatic impairment.

hVIVO's presence in Germany will enable clients to benefit from the recent proposals by the German Federal Ministry of Health for new Standard Contractual Clauses (SCs). These SCs will substantially reduce Clinical Trial Agreement (CTA) review times once finalized.

With a cutting-edge quarantine site, advanced laboratories, and an expanded site and service offerings, hVIVO is undoubtedly well-positioned to support the development of vaccines and antiviral therapeutics. Experts provide guidance throughout the entire product lifecycle, from feasibility through to the full execution of Phase 1 to 3 trials.

While human challenge models can enhance the efficiency of the key early phases in vaccine programs, hVIVO's expanded capacity can be utilized to carry out field trials, which will remain essential for generating longer-term and robust safety data and for pathogens unsuitable for challenge trials.

Fuente: NEWS MEDICAL LIFE SCIENCES. Disponible en <https://n9.cl/fe7udc>

Moderna Vaccine (Spikevax) Review: Why This COVID-19 Shot Still Matters in 2026

Jan 10. For years now, a cough in a crowded subway or a stranger sneezing on a plane has meant more than just a fleeting annoyance. It's been a trigger: Is this COVID again? Will I bring it home? Am I protected enough? The pandemic may no longer dominate the headlines every day, but the virus is still quietly evolving—and forcing you to make decisions about boosters, protection, and risk.

You've probably seen the headlines about new variants, changing guidelines, and updated booster recommendations. Maybe you've already had COVID once—or several times. Maybe you're wondering whether another shot is even worth it.

That fatigue is real. But so is the reality that hospitalizations and long-term complications still hit hardest among people whose protection has faded over time.

This is where the Moderna vaccine (Spikevax)—known in German as Moderna Impfstoff (Spikevax)—comes back into focus as a product you actively choose, not just something you once lined up for in a mass vaccination center.

The Solution: What Exactly Is Moderna Spikevax in 2026?

Moderna Spikevax is an updated mRNA COVID-19 vaccine designed to help your immune system stay ahead of the virus as it mutates. Moderna, Inc. (ISIN: US60770K1079) has been releasing variant-adapted formulations—most recently targeting circulating Omicron-lineage variants—so that your booster dose is not just a rerun of 2021, but tuned to today's threats.

In simple terms: Spikevax delivers carefully coded instructions (mRNA) that teach your cells to make a harmless piece of the coronavirus spike protein. Your immune system sees this, reacts, and builds a memory response. When the real virus shows up, your body is primed to respond faster and stronger.

Compared to the early pandemic days, the latest Spikevax formulations are:

- ♦ Variant-updated – tailored to currently dominant Omicron-lineage variants (for example XBB-line or subsequent WHO-designated strains, depending on region and date of approval).
- ♦ Refined in dosage – booster doses use a lower microgram amount than the original primary series, with similar or improved immune responses and often milder side effect profiles.
- ♦ Widely studied – by now, hundreds of millions of doses of Moderna's mRNA platform have been given globally, providing a deep safety and effectiveness data set.

Why This Specific Model?

There are multiple COVID-19 vaccines on the market—so why would you still choose Moderna Spikevax in 2026?

Based on regulatory documents, large-scale studies, and broad real-world experience, several themes stand out:

- ♦ Strong, durable immune response: Historically, data have consistently shown that Moderna's mRNA vaccine produces high levels of neutralizing antibodies. Many comparative studies have found that Moderna's antibody responses are at least on par with, and often somewhat higher than, other leading mRNA vaccines in adults.
- ♦ Variant targeting: Moderna has moved quickly to update Spikevax formulations in line with World Health

Organization and national regulator guidance to focus on currently dominant Omicron-lineage variants, aiming to improve protection against the strains you're most likely to encounter now—not two years ago.

- ◆ Simplified schedules: For most adults with prior vaccination, the updated Spikevax is used as a single-dose booster, making it easier to keep your protection current without committing to a long series.
- ◆ Well-understood safety profile: No vaccine is without risk, but the side effect profile of Moderna's COVID-19 vaccine is now extremely well characterized, from common short-term reactions (fatigue, headache, chills) to rare events like myocarditis, mainly in younger males. Regulators worldwide continue to deem the benefit–risk balance favorable.

In practice, that means Spikevax is a strong choice if you care about:

- ◆ Reducing your risk of severe COVID-19, hospitalization, and complications.
- ◆ Boosting waning immunity from earlier shots or infections.
- ◆ Keeping time away from work, family, or travel plans to a minimum.

At a Glance: The Facts

Feature	User Benefit
mRNA technology targeting current Omicron-lineage variants (per seasonal updates)	Gives your immune system more relevant training against the variants actually circulating now, not just the original 2020 strain.
Booster dose format (typically a single updated shot for most previously vaccinated adults)	Quick, convenient way to refresh protection without restarting a full primary series.
Strong neutralizing antibody response shown in clinical and real-world data	Translates into meaningful protection against severe disease, hospitalization, and ICU stays.
Established safety profile from hundreds of millions of doses globally	You're not a test case; rare side effects are known, monitored, and weighed against clear benefits.
mRNA platform that can be updated seasonally	Supports an influenza-like model: periodic variant-tuned boosters as the virus evolves.
Available across multiple regions through national vaccination programs and pharmacies	Relatively easy access, often at low or no out-of-pocket cost depending on your country and insurance.
Backed by Moderna Inc., a dedicated mRNA biotech (ISIN: US60770K1079)	Gives confidence that ongoing monitoring, updates, and transparency are part of a long-term platform strategy.

What Users Are Saying

Look at Reddit threads and health forums discussing "Moderna vaccine" or "Spikevax" and a pattern quickly emerges. The overall sentiment is cautiously positive, shaped by years of lived experience rather than marketing.

The common pros users mention:

- ◆ Perceived strong protection: Many users report feeling more comfortable after Moderna boosters, especially if they or their families are high-risk. People often cite going through big waves (Delta, Omicron) without serious illness after being boosted.
- ◆ Predictable side effects: Users frequently describe fatigue, chills, a day in bed—but crucially, they say it's similar or milder than earlier rounds and over within 24–48 hours.
- ◆ Trust built over time: Several commenters note that initial anxiety has faded as they've now had multiple Moderna doses without significant issues.

The common cons and concerns:

- ◆ Short-term side effects can be rough: A recurring theme is that Moderna boosters can hit harder than some alternatives—more fever, chills, and arm pain in some people.
- ◆ Myocarditis risk in younger males: Reddit and forums regularly reference official safety data showing a small increased risk of myocarditis, particularly in young men. Many users in this group discuss weighing that risk against their individual COVID-19 risk profile, sometimes opting for different vaccines where recommended by their doctor.
- ◆ Booster fatigue: Some users are simply tired of the constant drumbeat of "another shot," even if they acknowledge the rational case for staying updated.

In other words, real-world sentiment isn't blind hype. It's more like: "Side effects are real but temporary. Protection feels worth it, especially for people who can't afford to gamble with severe COVID."

Alternatives vs. Moderna Spikevax

To really understand if Moderna Spikevax is right for you, it helps to see it in context with other major COVID-19 vaccines still in circulation.

- ◆ Pfizer-BioNTech (Comirnaty): The closest competitor, also an mRNA vaccine with variant-updated formulations. In many studies, Pfizer and Moderna are effectively peers in effectiveness, with small differences in dosing and antibody levels. Some data have suggested Moderna may have slightly higher antibody responses in certain groups, while Pfizer may be associated with a marginally lower myocarditis risk in younger men. In practice, experts often say: take whichever updated mRNA shot is available to you first.
- ◆ Novavax: A protein-based, non-mRNA vaccine that appeals to people wary of mRNA technologies. It has shown solid protection and is often praised online for milder side effects in many users. However, mRNA vaccines like Moderna's are typically updated faster to match new variants, and availability for Novavax can be patchier depending on region.
- ◆ Inactivated or vector vaccines (various manufacturers): These are still used in some countries but are less central in many Western markets today, particularly for boosters, as mRNA and protein-based options have taken the lead in variant-updated strategies.

Where Moderna Spikevax tends to stand out is in the combination of:

- ♦ Fast variant updating.
- ♦ Strong immunogenicity (particularly in adults and older adults).
- ♦ A massive safety and effectiveness dataset accumulated since 2020.

Fuente: AD HOC NEWS. Disponible en <https://n9.cl/nzgiz>



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Estrategia de búsqueda: (Vaccine) AND DP:([01.01.2026 TO 11.01.2026]) as the publication date 41 records.

1. 20260000746 ADENOVIRAL VECTOR **VACCINE** AGAINST RESPIRATORY SYNCYTIAL VIRUS, AND PREPARATION METHOD THEREFOR AND USE THEREOF

US - 01.01.2026

Clasificación Internacional A61K 39/12Nº de solicitud 18864409 Solicitante CANSINO BIOLOGICS INC. Inventor/a Zening YANG

The present disclosure provides a respiratory syncytial virus-based adenovirus vector **vaccine**, a method for preparing same, and use thereof. Specifically, an adenovirus vector suitable for a transmucosal formulation against RSV is selected from a variety of adenovirus vectors. The **vaccine** is administered by inhalation, which can simulate the virus infection process, stimulate the immune response, and avoid local adverse effects such as injection site pain and the like due to intramuscular injection. By means of inhalation, the atomized **vaccine** can finally reach the lung through the respiratory tract, thus inducing the respiratory tract mucosal immunity while stimulating the humoral immunity and cellular immunity. The stimulation of the pulmonary mucosal immunity is the most effective method for preventing RSV infection and spread. The **vaccine** stimulates the lung mucosal immunity and exhibits a well induced humoral immunity level. The present disclosure screens the dose for inhalation and the selected dose is lower compared with the that of the intramuscular injection, thus possessing better safety.

2. WO/2026/001975 RECOMBINANT PROTEIN S-TRIMER OF INFECTIOUS BRONCHITIS VIRUS ANTIGEN AND SUBUNIT **VACCINE** THEREFOR

WO - 02.01.2026

Clasificación Internacional C07K 14/165Nº de solicitud PCT/CN2025/103120 Solicitante PULIKE BIOLOGICAL ENGINEERING, INC. Inventor/a TIAN, Kegong

The present application belongs to the field of veterinary drugs, and provides a recombinant protein S-Trimer of an infectious bronchitis virus antigen and a subunit **vaccine** therefor. Provided in the present application is a recombinant protein S-Trimer of an infectious bronchitis virus antigen, wherein the recombinant protein S-Trimer of the antigen has an amino acid sequence as set forth in SEQ ID No. 4. Also provided in the present application is an infectious bronchitis virus antigen. The infectious bronchitis virus antigen is of a trimer structure of the recombinant protein S-Trimer described above. The present application provides a subunit **vaccine** for an infectious bronchitis virus, wherein the subunit **vaccine** comprises a pharmaceutically acceptable carrier and an immunogenic amount of the infectious bronchitis virus antigen.

3. 12514920 RESPIRATORY SYNCYTIAL VIRUS MRNA **VACCINE**, AND PREPARATION METHOD THEREFOR AND USE THEREOF

US - 06.01.2026

Clasificación Internacional A61K 39/12Nº de solicitud 19262172 Solicitante Hangzhou Tianlong Pharmaceutical Co., Ltd. Inventor/a Gengshen Song

The present disclosure belongs to the technical field of mRNA vaccines, and particularly relates to a

respiratory syncytial virus (RSV) vaccine, and a preparation method therefor and use thereof. The vaccine provided by the present disclosure comprises RNA encoding an RSV F protein or a variant thereof. The vaccine can prevent an RSV infection and complications thereof.

4. 4673166 THERAPEUTISCHE HPV-IMPfstoffe auf Basis validierter Zielepitope

EP - 07.01.2026

Clasificación Internacional A61K 39/00Nº de solicitud 24707579 Solicitante DEUTSCHES KREBSFORSCHUNGSZENTRUM STIFTUNG DES OEFFENTLICHEN RECHTS Inventor/a RIEMER ANGELIKA BEATE

The present invention relates to a vaccine for use in therapeutic vaccination of a human subject against a human papillomavirus 16 (HPV16)-related virus, wherein said vaccine provides at least five discrete immunization peptides consisting of amino acid sequences selected from at least five of the following groups: (i) SEQ ID NOs: 1 to 10; (ii) SEQ ID NOs: 11 to 52; (iii) SEQ ID NOs: 53 to 79; (iv) SEQ ID NOs: 71 and 80 to 96; (v) SEQ ID NOs: 25, 81, and 97-106; and (vi) SEQ ID NOs: 9, 12, 23, 63, 81, 85, 101, and 107 to 131; wherein said vaccine is a human leukocyte antigen (HLA) universal vaccine for use in any human subject expressing at least one HLA of a HLA supertype selected from the list consisting of HLA-A01, HLA-A02, HLA-A03/A11, HLA-A24, HLA-B07, and HLA-B15, and wherein each of said at least five immunization peptides, when presented as an HLA-complex, activates human anti-immunization peptide T cells. The present invention also relates to kits, devices, and methods related thereto.

5. 4673170 THERAPEUTISCHER HPV-IMPfstoff auf Basis validierter Zielepitope

EP - 07.01.2026

Clasificación Internacional A61K 39/12Nº de solicitud 24707580 Solicitante DEUTSCHES KREBSFORSCHUNGSZENTRUM STIFTUNG DES OEFFENTLICHEN RECHTS Inventor/a RIEMER ANGELIKA

The present invention relates to a vaccine against a human papillomavirus 16 (HPV16)-related virus providing at least six discrete immunization peptides consisting of the amino acid sequences of SEQ ID NOs: 1 to 6, wherein said vaccine comprises a mixture of discrete peptides each comprising exactly one of said amino acid sequences; and to the vaccine for use in medicine and in eliciting an immune response in a human subject against HPV infection, as well as a kit related thereto.

6. 20260001939 VACCINE COMPRISING AN ANTIBODY OR AN FC-CONTAINING FUSION PROTEIN COMPRISING AN FC PART OF AN ANTIBODY

US - 01.01.2026

Clasificación Internacional C07K 16/08Nº de solicitud 18842490 Solicitante HEIDELBERG IMMUNOTHERAPEUTICS GMBH Inventor/a Michaela ARNDT

Described is a vaccine for use in actively immunising a subject against an infectious disease or a malignant disease, said vaccine comprising: (a) an antibody against an antigen correlated with said infectious disease or malignant disease; or (b) an Fc-containing fusion protein comprising an Fc part of an antibody fused to an antigen correlated with said infectious disease or malignant disease, wherein said Fc part is capable of binding a receptor present on or in an antigen presenting cell (APC) selected from the group consisting of Type I: activatory FcγRI, FcγRIIa, FcγRIIc, FcγRIIIa, FcγRIIIb, and inhibitory FcγRIIb; and Type II: neonatal FcR (FcRn) and cytosolic TRIM21. Moreover, described is a vaccine for use in actively immunising a subject

against an HSV-associated disease; and (a) wherein said antibody is an anti-HSV antibody and said subject suffers from an acute HSV-associated disease, preferably an acute HSV infection; or (b) wherein in said Fc-containing fusion protein comprising an Fc part of an antibody fused to an antigen, the antigen correlates with an HSV-associated disease.

7. 20260000748 INFLUENZA VACCINES WITH REDUCED AMOUNTS OF SQUALENE

US - 01.01.2026

Clasificación Internacional A61K 39/145Nº de solicitud 19049173 Solicitante Seqirus UK Limited Inventor/a Mario CONTORNI

Influenza vaccines include hemagglutinin from at least one influenza A virus strain and at least one influenza B virus strain. They also include an oil-in-water emulsion adjuvant with submicron oil droplets, comprising squalene. In some embodiments the hemagglutinin concentration is $>12 \mu\text{g/ml}$ per strain. In some embodiments the squalene concentration is $<19 \text{ mg/ml}$. In some embodiments the vaccine is mercury-free. In some embodiments the vaccine has a unit dose volume between 0.2-0.3 mL. In some embodiments the squalene concentration is 9.75 mg/mL or 4.88 mg/mL. In some embodiments the vaccine includes antigens from two influenza A virus strains and two influenza B virus strains.

8. 20260007733 SPECIFIC SACCHARIDE FRAGMENT FOR DEVELOPMENT OF VIBRIO CHOLERAEE VACCINES

US - 08.01.2026

Clasificación Internacional A61K 39/02Nº de solicitud 19258844 Solicitante Jiangnan University Inventor/a Jing HU

The present disclosure discloses a specific saccharide fragment for development of *Vibrio cholerae* vaccines, and belongs to the field of medicine. In the present disclosure, a saccharide fragment related to a trisaccharide of *V. cholerae* O100 serotype O-antigen is chemically synthesized. Combined with a glycan microarray technology, the structure-activity relationship between different saccharide fragments and antigenicity thereof is evaluated at a molecular level. Glycan microarray screening indicates that 3-hydroxybutyryl is an essential structural feature of the O-antigen. A non-reducing end disaccharide carrying 3-hydroxybutyryl is a potential minimal antigenic epitope, and the disaccharide has strong binding capacity to antibodies and a simple structure, and may serve as a specific saccharide fragment for vaccine development. A glycoconjugate vaccine designed based on the specific saccharide fragment may solve the challenges of difficulty in culturing pathogenic bacteria and heterogeneity of saccharide antigens in naturally extracted polysaccharide vaccines. The present disclosure has bright application prospects in the development of glycoconjugate *V. cholerae* vaccine, infection detection, and new drug development.

9. WO/2026/006400 A VIRULENCE MODIFYING PROTEIN-BASED RECOMBINANT VACCINE AND RAPID DIAGNOSTIC ASSAY FOR LEPTOSPIRA

WO - 02.01.2026

Clasificación Internacional A61K 39/02Nº de solicitud PCT/US2025/035177 Solicitante LUNA BIOSCIENCE, INC. Inventor/a VINETZ, Joseph M.

The invention provides a virulence modifying (VM) protein-based composition or vaccine for administration to a subject, comprising a recombinant VM protein antigen or a recombinant viral vector expressing a VM protein antigen and a pharmaceutically or veterinarily acceptable adjuvant. The invention further provides a

method for vaccinating a subject susceptible to leptospirosis infection or eliciting an immune response in the subject against leptospirosis comprising administering the vaccine to the subject. The invention also provides a method for diagnosing leptospirosis in a subject by quantifying the presence of a secreted, leptospiral VM protein antigen that mediates disease pathogenesis in the subject.

10. WO/2026/006741 LIPID NANOPARTICLE ADJUVANT COMPOSITIONS

WO - 02.01.2026

Clasificación Internacional A61K 39/39Nº de solicitud PCT/US2025/035708 Solicitante THE REGENTS OF THE UNIVERSITY OF CALIFORNIA Inventor/a FELGNER, Philip

Improved vaccine compositions and methods are provided, which incorporate the use of lipid nanoparticles which maintain or improve vaccine efficacy while reducing vaccine toxicity and/or side effects.

11. WO/2026/005488 AUTOANTIGEN-SPECIFIC NANOFUSION VACCINE COMPOSITION FOR TREATMENT OF SYSTEMIC SCLEROSIS FOR SIMULTANEOUS IMMUNOMODULATION AND ANTIFIBROSIS

WO - 02.01.2026

Clasificación Internacional A61K 9/51Nº de solicitud PCT/KR2025/008917 Solicitante THE CATHOLIC UNIVERSITY OF KOREA INDUSTRY-ACADEMIC COOPERATION FOUNDATION Inventor/a CHO, Mi-La

The present invention relates to an autoantigen-specific nanofusion vaccine composition for the treatment of systemic sclerosis, the composition being for simultaneous immunomodulation and antifibrosis. A nanofusion body carrying a vimentin peptide according to the present invention was found to inhibit tissue fibrosis in systemic sclerosis, reduce the amount of autoantibodies in serum, and regulate the expression of immune-regulatory cells and pathogenic cells associated with systemic sclerosis. The nanofusion body was also found to inhibit tissue fibrosis and to exhibit enhanced anti-fibrotic effects, when co-administered with a vimentin antibody, in an animal model reflecting the immune status of systemic sclerosis patients. In addition, the nano-vaccine was found to decrease the expression of fibrotic and pathogenic factors in tissues and was also found to improve disease activity not only in vimentin-specific systemic sclerosis but also in infection-associated systemic sclerosis.

12. WO/2026/010496 VACCINATION

WO - 08.01.2026

Clasificación Internacional A61K 39/39Nº de solicitud PCT/NL2025/050285 Solicitante LITEVAX B.V. Inventor/a HILGERS, Lucas Alfonsus Theodorus

This invention relates to vaccines comprising a fraction of registered vaccines and an adjuvant comprising carbohydrate monosulphate fatty acid ester (CMS) and the simple, one-step preparation method thereof by mixing a single dose of a vaccine with multiple doses of a ready-to-use novel CMS-based adjuvant delivering multiple doses of a non-inferior and often even improved vaccine. The mixing is preferably done by the end-user (vaccinator, general practitioner) briefly prior to vaccination, which offers a series of advantages including improved affordability, availability, and accessibility of vaccine products.

13. WO/2026/003242 DENDRITIC CELLS-TARGETING **VACCINE** AGAINST HBV INFECTION

WO - 02.01.2026

Clasificación Internacional C07K 16/28Nº de solicitud PCT/EP2025/068198 Solicitante INSTITUT NATIONAL DE LA SANTÉ ET DE LA RECHERCHE MÉDICALE Inventor/a LEVY, Yves

The present disclosure relates to a novel **vaccine** strategy against hepatitis B virus (HBV) infection, which is a major cause of chronic liver disease and hepatocellular carcinoma worldwide. The disclosure provides fusion proteins that target dendritic cells (DCs), the key antigen-presenting cells of the immune system, and deliver HBV-derived peptides to both the major histocompatibility complex (MHC) class I and II pathways, thereby inducing strong and specific humoral and cellular immune responses against the viral envelope and core antigens. The disclosure also provides methods of using the fusion proteins for the prevention or treatment of HBV infection and its complications. The inventors have demonstrated in a mouse model that the DC-targeting HBV **vaccine** candidates can elicit robust antibody and T cell responses, which are essential for the clearance of the virus and the protection from chronic infection.

14. WO/2026/010947 NEUTRALIZING ANTIBODIES AGAINST HIV ENV

WO - 08.01.2026

Clasificación Internacional C07K 16/10Nº de solicitud PCT/US2025/036079 Solicitante INTERNATIONAL AIDS **VACCINE** INITIATIVE Inventor/a KEDZIOR, Mateusz

The present disclosure relates to anti-HIV antibodies and their use in the treatment or prevention of HIV/AIDS and in the development of HIV vaccines.

15. 20260007740 **VACCINE** COMPOSITION

US - 08.01.2026

Clasificación Internacional A61K 39/245Nº de solicitud 19323644 Solicitante SpyBiotech Limited Inventor/a Sumi BISWAS

The present invention relates to **vaccine** compositions, most notably **vaccine** compositions wherein the antigenic component is large, for example over 50 kDa, or multimeric, i.e. comprised of subunits. Such antigenic components are of particular interest, because they may represent antigenic components from pathogens that currently it is not possible to vaccinate against. The invention relates to a composition comprising a particle displaying an antigenic component, wherein said composition comprises an antigenic component comprising a first peptide tag, and a moiety comprising a second peptide tag, wherein the antigenic component and the moiety are linked via an isopeptide bond between said first and second peptide tags, and wherein the antigenic component is over 50 kDa, or alternatively is multimeric.

16. WO/2026/006277 VIRAL SUBUNIT VACCINES

WO - 02.01.2026

Clasificación Internacional Nº de solicitud PCT/US2025/034998 Solicitante MASSACHUSETTS INSTITUTE OF TECHNOLOGY Inventor/a CHEN, Jianzhu

Described herein is an engineered viral subunit **vaccine** encoding ASFV capsid proteins (e.g., P72 and

Penton) for use in pigs. The vaccine with either P72 or Penton tested in mice elicited significantly higher levels of antigen-specific IgM and IgG, increased frequency of antibody-secreting cells in the bone marrow, and higher quality germinal centers in the spleens of immunized mice. Enhanced T cell responses were also observed, with higher levels of IFN- γ and TNF- α in splenocytes. Immunogenicity assessments in pigs further supported these findings, with both MB-P72 and MB-PN180Q inducing robust B cell and T cell responses. These findings show that expression of capsid proteins P72 and Penton in membrane-bound forms via mRNA preserves their native multimeric structure and enhances their immunogenicity and provides a basis for an effective ASFV vaccine.

17. 4673169 DNA-IMPFFSTOFF GEGEN SALMONID-ALPHAVIRUS

EP - 07.01.2026

Clasificación Internacional A61K 39/12Nº de solicitud 24707546 Solicitante INTERVET INT
BVInventor/a VILLOING STEPHANE

Salmonid alphavirus (SAV) is an important pathogen affecting the aquaculture of Salmonid fish. Vaccines based on DNA plasmids expressing a SAV antigen have been described. However these are difficult to prepare at large scale and at the desired quality level. Also, they are commonly administered at relatively high amounts of plasmid per animal dose. This makes such DNA vaccines less affordable for this market. The invention discloses an improved plasmid that allows effective use as a DNA vaccine against SAV, but at a much reduced amount of DNA per dose. The plasmid contains a gene encoding a bacterial enzyme: Fab.

18. WO/2026/004599 MODIFIED AFRICAN SWINE FEVER VIRUS AND VACCINE USING SAME

WO - 02.01.2026

Clasificación Internacional C12N 7/01Nº de solicitud PCT/JP2025/021075 Solicitante NATIONAL AGRICULTURE AND FOOD RESEARCH ORGANIZATION Inventor/a KITAMURA Tomoya

By deleting a nucleotide sequence encoding the amino terminal region and a nucleotide sequence encoding the carboxy terminal region of the E120R protein in the genome, the modified African swine fever virus does not remain in the body of the inoculated animal and exhibits a vaccine effect against African swine fever.

19. 20260007711 NUTRACEUTICAL FORMULATIONS TO PREVENT, TREAT, AND INHIBIT EXCESS CYTOKINES, SARS-COV-2 SPIKE PROTEINS, AND MRNA VACCINE SPIKE PROTEIN

US - 08.01.2026

Clasificación Internacional A61K 36/73Nº de solicitud 19269140 Solicitante Pono Lifestyle, LLC Inventor/a Mark A. Fluga

Combinations of cannabinoids, vitamins, trace elements, bioactive components, bioflavonoid polyphenols, proteolytic enzymes, amino acids, and antioxidants which work independently and synergistically for the prevention, treatment, and inhibition of excess cytokines caused by the immune response to extreme viral and bacterial infections, including the inhibition of COVID-19, Rhinovirus and/or other virus spike proteins and mRNA vaccine spike proteins from attaching to body organ cells, penetrating cell membranes, and the replication of virus particles and spike proteins inside the cells. Inhibition of inflammation and prevention of long-term side effects, health issues (long-haulers), and disease caused by the SARS-COV-2 and its variants, Rhinovirus, other viruses, bacteria, and mRNA vaccines are provided by the nutraceutical compositions.

Specific combinations of these compounds work synergistically to increase the efficacy of the independent nutraceuticals in treatment.

20. WO/2026/006491 SENCAVIRUS A (SVA) **VACCINE** COMPOSITIONS AND METHODS THEREOF

WO - 02.01.2026

Clasificación Internacional A61K 39/125Nº de solicitud PCT/US2025/035305 Solicitante CORNELL UNIVERSITY Inventor/a DIEL, Diego G.

The present disclosure provides immunogenic compositions and vaccines as well as associated methods for control of Senecavirus A (SVA) in pigs. Advantageously, the compositions and methods described herein can be administered using a single dose and can be delivered to pigs via different routes. The compositions and methods utilize a live attenuated **vaccine** strategy that provides robust efficacy and near sterilizing immunity in pigs.

21. WO/2026/003181 OUTER MEMBRANE VESICLES FROM AVIAN PATHOGENIC *ESCHERICHIA COLI* AND AEROSOL **VACCINE** COMPRISING THE SAME

WO - 02.01.2026

Clasificación Internacional A61K 39/108Nº de solicitud PCT/EP2025/068091 Solicitante UNIVERSITY OF COPENHAGEN Inventor/a ANTENUCCI, Fabio

The present invention relates to an avian pathogenic *Escherichia coli* (APEC) strain and a method for obtaining outer membrane vesicles (OMV) therefrom. The OMVs may be obtained in high concentrations suitable for use in aerosol **vaccine** preparations.

22. 4673456 ORALER IMPFSTOFF

EP - 07.01.2026

Clasificación Internacional C07K 14/005Nº de solicitud 24709319 Solicitante UNIV MUENSTER WESTFAELISCHE WILHELMS Inventor/a JOSE JOACHIM

The present invention relates to a non-viable bacterium cell wherein an immunogenic polypeptide fused to an autotransporter comprising transmembrane linker and a trans- porter domain is displayed on the surface of the cell, and to a preparation comprising such non-viable cells. The preparation is useful as an oral **vaccine**.

23. 20260008854 METHODS FOR VACCINATION OF A SUBJECT TREATED WITH AN FCRN ANTAGONIST

US - 08.01.2026

Clasificación Internacional C07K 16/28Nº de solicitud 19328494 Solicitante argenx BV Inventor/a Sophie Steeland

The present disclosure provides methods for vaccination of subjects treated with a human neonatal Fc receptor (FcRn) antagonist. The present disclosure also provides methods of administering an FcRn antagonist to a subject that has recently received a **vaccine** or will soon receive a **vaccine**. In some embodiments, the FcRn antagonist is efgartigimod.

24. WO/2026/001100 VARICELLA-ZOSTER VIRUS NANOPARTICLE PROTEIN, AND PREPARATION

METHOD THEREFOR AND USE THEREOF

WO - 02.01.2026

Clasificación Internacional C07K 14/04Nº de solicitud PCT/CN2025/082884Solicitante UNIVERSALVAX BIOTECHNOLOGIES (TAIZHOU) CO., LTD.Inventor/a LI, Jianping

A varicella-zoster virus (VZV) nanoparticle protein, and a preparation method therefor and a use thereof. The VZV protein comprises a partial or full sequence of an amino acid sequence of an extracellular region of a VZV gE glycoprotein, with W at position 200 mutation to C and L at position 245 mutation to C in the amino acid sequence of the extracellular region of the VZV gE glycoprotein. By means of the rational optimization design of the amino acid sequence of the VZV gE protein by means of protein genetic engineering, the VZV gE recombinant protein modified with amino acid mutations has increased stability and immunogenicity compared with the VZV gE protein. Moreover, by further designing the protein structure, the VZV gE protein is repeatedly displayed on the surface of ferritin nanoparticles with the desired epitopes exposed, thereby further enhancing immunogenicity.

25.20260007741LIPID NANOPARTICLES FOR DELIVERY OF NUCLEIC ACIDS AND VACCINES

US - 08.01.2026

Clasificación Internacional A61K 39/39Nº de solicitud 19243498Solicitante Akagera Medicines, Inc.Inventor/a Daryl C. Drummond

Aspects of the present disclosure provides for improved **vaccine** compositions of ionizable lipid nanoparticles for the delivery of immunogenic nucleic acids to cells. Anionic phospholipids, including phosphatidylserine and phosphatidylglycerol are included in the lipid nanoparticles to increase the transfection efficiency in dendritic cells. In some embodiments, the incorporation of mono-unsaturated alkyl chain analogs in dimethylaminopropyl-dioxolane or heterocyclic ketal ionizable lipids in the formulation provided high levels of transfection in human dendritic cells, compared to other ionizable lipids in the same family, and demonstrated good stability to oxidative damage.

26.WO/2026/006438NON-SURGICAL, INJECTABLE STERILANT FOR DOGS AND CATS

WO - 02.01.2026

Clasificación Internacional A61K 39/00Nº de solicitud PCT/US2025/035235Solicitante THE REGENTS OF THE UNIVERSITY OF CALIFORNIAInventor/a ZAISS, Anne Kathrin

The present disclosure generally relates to methods and compositions for contraception. In embodiments of the invention, vector based **vaccine** approaches for dog and cat contraception are provided.

27.20260000749ROTAVIRUS VACCINES

US - 01.01.2026

Clasificación Internacional A61K 39/15Nº de solicitud 19199197Solicitante CureVac SEInventor/a Susanne RAUCH

The present invention provides mRNA sequences comprising at least one coding region, encoding for at least one epitope of a protein, or of a fragment, variant or derivative thereof, of a virus of the genus rotavirus.

Particularly preferred is the protein respectively the protein cleavage product VP8* of rotavirus. The mRNA sequence may be used as a [vaccine](#) or generally as a pharmaceutical composition for prophylaxis or treatment of rotavirus infections.

28. [20260000752](#) ANTIGEN SPECIFIC IMMUNOTHERAPY FOR COVID-19 FUSION PROTEINS AND METHODS OF USE

US - 01.01.2026

Clasificación Internacional [A61K 39/215](#)Nº de solicitud 19254677 Solicitante VAKSTON, INC. Inventor/a Todd C. ZION

The present disclosure provides recombinantly manufactured fusion proteins comprising a SARS-CoV-2 Receptor Binding Domain (SARS-CoV-2-RBD) fragment or an analog thereof linked to a human Fc fragment for use in relation to the 2019 Novel Coronavirus (COVID-19). Embodiments include the administration of the fusion proteins to patients that have recovered from COVID-19 as a booster vaccination, to antibody naïve patients to produce antibodies to the SARS-CoV-2 virus to enable the patients to become convalescent plasma donors, to patients who have been infected by the SARS-CoV-2 virus and have contracted COVID-19 in order to limit the scope of the infection and ameliorate the disease, and as a prophylactic COVID-19 [vaccine](#). Exemplary Fc fusion proteins and pharmaceutical formulations of exemplary Fc fusion proteins are provided, in addition to methods of use and preparation.

29. [20260007604](#) USE OF A SPRAY FREEZE-DRYING PROCESS FOR THE LYOPHILIZATION OF A MRNA-ENCAPSULATING LIPID NANOPARTICLES FORMULATION

US - 08.01.2026

Clasificación Internacional [A61K 9/16](#)Nº de solicitud 18875885 Solicitante Pfizer Inc. Inventor/a Bakul Subodh Bhatnagar

The invention relates to the lyophilization of a liquid pharmaceutical formulation including lipid nanoparticles encapsulating mRNA.

According to the invention, a spray freeze-drying process is used to achieve the lyophilization.

The invention is of particular interest for the lyophilization of mRNA [vaccine](#) formulations.

30. [WO/2026/006644](#) CIRCULAR MRNA YELLOW FEVER [VACCINE](#)

WO - 02.01.2026

Clasificación Internacional [A61K 39/12](#)Nº de solicitud PCT/US2025/035551 Solicitante EMERVAX, INC. Inventor/a MALONEY, Adam James

The present invention is directed to an artificial nucleic acid, particularly to an artificial RNA suitable for use in preventing an infection from yellow fever virus (YFV), Hantaan Orthohantavirus (HTNV) or a disorder related to such an infection. The disclosure also provides recombinant circular RNA molecules that includes an internal ribosome entry site (IRES) sequence operably linked to a protein-coding sequence, and DNA sequences encoding the same. Embodiments also include methods of treating or preventing a disorder or a disease, first and second medical uses of the artificial RNA, compositions and vaccines

31. 20260007738 SELF-REPLICATING RNA VACCINES AND METHODS OF USE

US - 08.01.2026

Clasificación Internacional A61K 39/215Nº de solicitud 19231051 Solicitante Immorna (Hangzhou) Biotechnology Co., Ltd. Inventor/a Zihao Wang

The disclosure relates improved self-replicating RNA vectors e.g., for use as a RNA vaccine or therapeutic, and methods of use.

32. 20260007734 IMMUNOGENIC COMPOSITIONS FOR THE PREVENTION OF INFLUENZA A

US - 08.01.2026

Clasificación Internacional A61K 39/145Nº de solicitud 18850073 Solicitante Oxford University Innovation Limited Inventor/a Sunetra GUPTA

The present invention relates to polypeptides and immunogenic compositions, particularly vaccine compositions, for the prevention or treatment of influenza A. The invention also provides nucleic acid molecules and vectors encoding the polypeptides, and methods of using the compositions, nucleic acid molecules and vectors for the prevention or treatment of influenza A.

33. 20260002206 COMBINATION PANEL CELL-FREE DNA MONITORING

US - 01.01.2026

Clasificación Internacional C12Q 1/6874Nº de solicitud 19194819 Solicitante Seattle Project Corp. Inventor/a Desiree Schenk

Methods and compositions for monitoring mutation burden, cancer status, vaccine efficacy using cell-free DNA sequencing following enrichment with combination probe panels are disclosed.

34. 20260000672 HISTONE DEACETYLASE INHIBITORS FOR USE IN IMMUNOTHERAPY

US - 01.01.2026

Clasificación Internacional A61K 31/522Nº de solicitud 19320907 Solicitante Viracta Subsidiary, Inc. Inventor/a James N. WOODY

Provided are methods and compositions for the treatment of cancer. The methods comprise administering to a subject an HDAC inhibitor and an immunotherapeutic. In certain instances the immunotherapeutic is a chimeric antigen receptor T cell, an antibody or polypeptide that binds a checkpoint inhibitor, or a vaccine.

35. WO/2026/006687 CIRCULAR RNA COMPOSITIONS AND USES THEREOF FOR DISEASES CAUSED BY VARICELLA-ZOSTER VIRUS

WO - 02.01.2026

Clasificación Internacional A61K 39/12Nº de solicitud PCT/US2025/035631 Solicitante ORBITAL THERAPEUTICS, INC. Inventor/a BESIN, Gilles

The present disclosure relates to circular RNA sequences encoding an antigen from varicella zoster virus (VZV). The circular RNA sequences described herein are used as vaccines and compositions for preventing or treating diseases resulting from VZV, including shingles. Methods of use, including methods of treating or preventing a disease caused by VZV and methods for formulating and preparing the

VZV vaccine compositions, are also described.

36. 4673168 ZUSAMMENSETZUNGEN ZUR VERWENDUNG BEI DER BEHANDLUNG VON CHLAMYDIA
EP - 07.01.2026

Clasificación Internacional A61K 39/118Nº de solicitud 24710343 Solicitante SANOFI
PASTEUR Inventor/a ARNAUD BARBE NADÈGE

This invention relates to compositions (e.g., vaccine compositions) which can be used to immunise against *Chlamydia* infections. The compositions comprise *Chlamydia* sp. antigens and antigen combinations which can be used to immunise against *Chlamydia* sp., used in the form of nucleic acids (e.g., mRNAs) encoding antigenic proteins or in the form of recombinant protein antigens.

37. WO/2026/006196 CONICAL SHAPED DIACYL GLYCEROETHYLPHOSPHOCHOLINES AS CATIONIC LIPIDS AND USES THEREOF

WO - 02.01.2026

Clasificación Internacional C07F 9/10Nº de solicitud PCT/US2025/034838 Solicitante AVANTI POLAR LIPIDS, LLC Inventor/a BURGESS, Stephen Wayne

A compound having the structure (I) is provided. The compound is useful as a therapeutic agent in the form of a lipoplex, or in a form of a polyplex, in a form of a lipid nanoparticle, or in a form of a liposome, or in a form of a micelle, or in a form of an emulsion including a drug, vaccine, oligonucleotide, antibody, enzyme, protein, small molecule, or nucleotide.

38. WO/2026/001832 USE OF NUCLEIC ACID IN PREPARATION OF DRUG FOR PREVENTING AND TREATING CACHEXIA AND ADMINISTRATION METHOD THEREFOR

WO - 02.01.2026

Clasificación Internacional C12N 15/113Nº de solicitud PCT/CN2025/102168 Solicitante JIANGSU NUTAI BIOLOGICS CO., LTD. Inventor/a HU, Xiaoyun

Use of a nucleic acid in the preparation of a drug for preventing and treating cachexia and an administration method therefor. The nucleic acid regulates in vivo cachexia-related factors by means of an oligonucleotide that the nucleic acid comprises or produces, initiates an autologous reprogramming state, regulates the activation/silencing of a key nucleic acid factor to enable a non-coding RNA regulatory signal programming network, and achieves the purpose of a single non-coding RNA regulating multiple signaling pathways, thereby enabling the establishment of new homeostasis from a dysregulated physiological state.

39. WO/2026/008022 METHOD FOR MEASURING VIRUS TITER OF LIVE ATTENUATED MEASLES, MUMPS, RUBELLA AND VARICELLA COMBINED VACCINE

WO - 08.01.2026

Clasificación Internacional C12Q 1/70Nº de solicitud PCT/CN2025/106875 Solicitante SHANGHAI INSTITUTE OF BIOLOGICAL PRODUCTS CO., LTD. Inventor/a XU, Ran

Provided are a primer-probe combination for real-time quantitative PCR, a related kit, and a method for using

primers to measure the titers of measles, mumps and varicella virus pathogens. The method is applicable to clinical and laboratory detection, is fast and convenient, and has high sensitivity.

40. 20260000750 RSV VIRUS-LIKE PARTICLES AND METHODS OF USE THEREOF

US - 01.01.2026

Clasificación Internacional A61K 39/155Nº de solicitud 19262633Solicitante EMORY UNIVERSITYInventor/a Binh HA

The present disclosure relates to virus-like particles and **vaccine** compositions for inducing immunity and preventing respiratory syncytial virus (RSV) infection.

41. WO/2026/005944 PIPERAZINE BASED DIVALENT IONIZABLE LIPIDS AND THEIR USES

WO - 02.01.2026

Clasificación Internacional C07C 219/06Nº de solicitud PCT/US2025/031500Solicitante AVANTI POLAR LIPIDS, LLCInventor/a LI, Shengrong

A compound having the structure (I) is provided. The compound is useful as a therapeutic agent in the form of a lipoplex, or in a form of a polyplex, in a form of a lipid nanoparticle, or in a form of a liposome, or in a form of a micelle, or in a form of an emulsion including a drug, **vaccine**, oligonucleotide, antibody, enzyme, protein, small molecule, or nucleotide.

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

Estrategia de búsqueda: vaccine.ti. AND @PD>="20260101"<=20260111 20 records

Document ID	Title	Inventor	Applicant Name
US 20260007711 A1	NUTRACEUTICAL FORMULATIONS TO PREVENT, TREAT, AND INHIBIT EXCESS CYTOKINES, SARS-CoV-2 SPIKE PROTEINS, AND mRNA VACCINE SPIKE PROTEIN	Fluga; Mark A.	Pono Lifestyle, LLC
US 20260007740 A1	VACCINE COMPOSITION	BISWAS; Sumi et al.	SpyBiotech Limited
US 20260007730 A1	HUMAN CTLA-4 PEPTIDE VACCINES AND USES THEREOF	KAUMAYA; Pravin	Ohio State Innovation Foundation
US 20260007738 A1	SELF-REPLICATING RNA VACCINES AND METHODS OF USE	Wang; Zihao et al.	Immorna (Hangzhou) Biotechnology Co., Ltd.
US 20260007733 A1	Specific Saccharide Fragment for Development of Vibrio Cholerae Vaccines	HU; Jing et al.	Jiangnan University
US 20260007731 A1	INTRANASAL POLYSACCHARIDE CONJUGATE NANOMULSION VACCINES AND METHODS OF USING THE SAME	BITKO; Vira et al.	BLUEWillow Biologics, Inc.
US 20260007741 A1	LIPID NANOPARTICLES FOR DELIVERY OF NUCLEIC ACIDS AND VACCINES	Drummond; Daryl C. et al.	Akagera Medicines, Inc.
US 12514920 B1	Respiratory syncytial virus mRNA vaccine, and preparation method therefor and use thereof	Song; Gengshen et al.	Hangzhou Tianlong Pharmaceutical Co., Ltd.
US 12514916 B2	Porcine circovirus type 2 VLP vaccine	Arakawa; Takeshi et al.	MEIJI ANIMAL HEALTH CO., LTD.
US 12514915 B2	Vaccines and related methods for treatment of Pseudomonas bacterial infections	Yu; Hongwei D. et al.	Marshall University Research Corporation

US 12514865 B2	Biomaterial-based antigen free vaccine and the use thereof	Najibi; Alexander J. et al.	President and Fellows of Harvard College, The General Hospital Corporation
US 12514919 B2	Influenza vaccine composition based on novel nucleic acid	Kim; Mee Hyein et al.	NA VACCINE INSTITUTE
US 12516296 B2	Vaccines for treating SARS infections in cancer patients	Yu; Jianhua et al.	City of Hope
US 20260000751 A1	CORONAVIRUS VACCINES AND METHODS OF USE THEREOF	DU; Lanying et al.	GEORGIA STATE UNIVERSITY RESEARCH FOUNDATION, INC., REGENTS OF THE UNIVERSITY OF MINNESOTA
US 20260000748 A1	INFLUENZA VACCINES WITH REDUCED AMOUNTS OF SQUALENE	CONTORNI; Mario et al.	Seqirus UK Limited
US 20260000747 A1	INFLUENZA VIRUS VACCINES AND USES THEREOF	GARCIA-SASTRE; Adolfo et al.	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI
US 20260001918 A1	INFLUENZA VIRUS VACCINES AND USES THEREOF	GARCIA-SASTRE; Adolfo et al.	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI
US 20260000749 A1	ROTAVIRUS VACCINES	RAUCH; Susanne et al.	CureVac SE
US 20260001939 A1	VACCINE COMPRISING AN ANTIBODY OR AN FC-CONTAINING FUSION PROTEIN COMPRISING AN FC PART OF AN ANTIBODY	ARNDT; Michaela et al.	HEIDELBERG IMMUNOTHERAPEUTICS GMBH
US 20260000746 A1	ADENOVIRAL VECTOR VACCINE AGAINST RESPIRATORY SYNCYTIAL VIRUS, AND PREPARATION METHOD THEREFOR AND USE THEREOF	YANG; Zening et al.	CANSINO BIOLOGICS INC.

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