MONTHLY SCIENTIFIC REVIEW
ON CHIKUNGUNYA VIRUS

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Situation at a glance

- Chikungunya is an infectious disease caused by an arbovirus, the chikungunya virus.
- Between 2010 and 2024, no cases had been detected on the island of Réunion. Since the beginning of 2025 and up to October 24, 2025, Réunion has experienced a major outbreak with nearly 54,550 biologically confirmed autochthonous chikungunya cases and 43 deaths. The end of the outbreak was declared on June 24, 2025, by health authorities.
- At the same time, Mayotte has also experienced active virus circulation, with over 1,200 cases since the first imported cases and an outbreak declared on May 27, 2025.
- Mainland France is also seeing active CHIKV circulation, with a total of 48 autochthonous cases as of October 13, across 15 departments. The affected regions are Provence-Alpes-Côte d'Azur, Occitanie, Nouvelle-Aquitaine, and for the first time Île-de-France and Auvergne-Rhône-Alpes.

Scientific articles

This section presents relevant articles published on peer-reviewed scientific journals or pre-print platforms.

2025-09-01

Differentiating dengue, Zika, and chikungunya in paediatric populations.

Journal: Lancet Child Adolesc Health

Authors: Gabriela Paz-Bailey, Randall J Nett

See details

2025-09-01

Fatal Adverse Event After VLA1553 Chikungunya Vaccination in an Elderly Patient: A Case Report From Reunion Island.

Journal: Open Forum Infect Dis

Authors: Emilie Mosnier, Marie-Christine Jaffar-Bandjee, Radj Cally, Lotfi Dahmane, Etienne Frumence, Liem Binh Luong Nguyen, Rodolphe Manaquin, Muriel Vincent, Marie Pierre Moiton, Patrick Gérardin, Xavier de Lamballerie, Julien Jabot

An 84-year-old man developed fatal febrile encephalopathy 3 days after receiving the live-attenuated chikungunya vaccine VLA1553. Symptoms included fever, confusion, acute kidney injury, and hemodynamic instability. The vaccine strain was detected in serum and cerebrospinal fluid. Despite intensive care, the patient died 14 days after symptom onset, marking the first fatal adverse event linked to VLA1553. This case highlights the potential for neuroinvasive disease in elderly individuals post-vaccination and the need for vigil

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2025-07-26

Clinical and molecular epidemiology of chikungunya outbreaks during 2019-2022 in India.

Journal: Sci Rep

Authors: Naren Babu N, Anup Jayaram, Ujwal Shetty, Prasad Varamballi, Piya Paul Mudgal, Vikas Suri, Mini P Singh, Kamaljeet Kamaljeet, Sachee Agrawal, Mala Kaneria, Seema Kini, Anupam Dey, Dhriti Sundar Das, Shakuntala Mahilkar, Garvita Mathur, Sakshi Chaudhary, P Sanjai Kumar, Sharad Singh, Sweta Smita Pani, Soma Chattopadhyay, Sujatha Sunil, Baijayantimala Mishra, Jayanthi Shastri, R K Ratho, Anitha Jagadesh

The study identified 258 chikungunya cases among 1312 suspected patients in India (2019-2022), with severe symptoms during the viremic phase. Neutralizing capacity increased with illness onset and IgG antibody rise. Outbreaks varied across four clinical sites, showing distinct clinical presentations. Phylogenetic analysis of 62 CHIKV isolates revealed viral evolution within India, suggesting spatial and temporal variations in clinical presentation and viral evolution.

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2025-08-31

Time Series Analysis of Dengue, Zika, and Chikungunya in Ecuador: Emergence Patterns, Epidemiological Interactions, and Climate-Driven Dynamics (1988-2024).

Journal: Viruses

Authors: José Daniel Sánchez, Carolina Álvarez Ramírez, Emilio Cevallos Carrillo, Juan Arias Salazar, César Barros Cevallos

The study analyzed 36 years of dengue, Zika, and chikungunya data in Ecuador, revealing dengue's dominance and cyclic patterns linked to El Niño events. Chikungunya and Zika emerged abruptly and declined rapidly. Severe dengue cases decreased post-2016, suggesting immunological effects. Climate, particularly El Niño, significantly influenced epidemic timing, highlighting the need for integrated surveillance and adaptive control strategies.

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2025-08-22

Development, validation, and application of a dual-color fluorescent assay for high-throughput screening of anti-chikungunya drugs.

Journal: Sci Rep

Authors: Pattadon Sawetpiyakul, Duangpron Peypala, Pathaphon Wiriwithya, Gridsada Phanomchoeng, Tanatorn Khotavivattana, Warintorn Chavasiri, Sittiporn Pattaradilokrat, Siwaporn Boonyasuppayakorn

The study developed a dual-color fluorescent assay for high-throughput screening of anti-chikungunya drugs, using Vero cells and CHIKV. The assay demonstrated high sensitivity, reproducibility, and efficiency, outperforming traditional methods. It identified 22 potential hits for further investigation.

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2025-08-25

Determinants of human versus mosquito cell entry by the Chikungunya virus envelope proteins.

Journal: bioRxiv

Authors: Xiaohui Ju, William W Hannon, Tomasz Kaszuba, Caelan E Radford, Brendan B Larsen, Samantha S Nelson, Christopher A Nelson, Israel Baltazar-Perez, Ofer Zimmerman, Daved H Fremont, Michael S Diamond, Jesse D Bloom

The study employs pseudovirus deep mutational scanning to investigate how nearly all amino-acid mutations in Chikungunya virus (CHIKV) envelope proteins affect cell entry in human (MXRA8-expressing) and mosquito cells. Most mutations similarly impact entry in both cell types, indicating constraints related to protein folding and fusion. However, some mutations differentially affect entry, suggesting specific interactions with MXRA8 in human cells and an unknown receptor in mosquito cells. The findings identify species-specific

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2025-09-07

Monocyte Dynamics in Chikungunya Fever: Sustained Activation and Vascular-Coagulation Pathway Involvement.

Journal: Viruses

Authors: Caroline Fernandes Dos Santos, Priscila Conrado Guerra Nunes, Victor Edgar Fiestas-Solorzano, Mariana Gandini, Flavia Barreto Dos Santos, Roberta Olmo Pinheiro, Luís Jose de Souza, Paulo Vieira Damasco, Luzia Maria de Oliveira Pinto, Elzinandes Leal de Azeredo

The study found that Chikungunya fever patients exhibit sustained activation of monocytes, with increased TLR4 and TLR7 expression, and elevated sCD163 levels. Coagulation mediators like TF and TFPI were also elevated. Patients with arthritis or edema showed distinct monocyte activation patterns and growth factor levels.

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2025-09-29

A quantitative high-throughput screening pipeline to identify small molecule inhibitors of Chikungunya nsP2 protease.

Journal: Sci Rep

Authors: Shuaizhang Li, Xin Hu, Yong-Mo Ahn, Angelica Medina, Lin Ye, Audrey Heffner, Simon Messing, John-Paul Denson, Dominic Esposito, Emily M Lee, Natalia J Martinez

The study developed a high-throughput screening pipeline to identify small molecule inhibitors of the Chikungunya virus (CHIKV) nsP2 protease, a key enzyme in viral replication. Using a FRET-based assay, approximately 31,000 compounds were screened, and hits were validated for selectivity and cell-based activity. Novel inhibitors were identified, and their binding modes and antiviral activities were evaluated, advancing CHIKV antiviral research.

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2025-09-01

Comparison of dengue, chikungunya, and Zika among children in Nicaragua across 18 years: a single-centre, prospective cohort study.

Journal: Lancet Child Adolesc Health

Authors: Fausto Andres Bustos Carrillo, Sergio Ojeda, Nery Sanchez, Miguel Plazaola, Damaris Collado, Tatiana Miranda, Saira Saborio, Brenda Lopez Mercado, Jairo Carey Monterrey, Sonia Arguello, Lora Campredon, Zijin Chu, Colin J Carlson, Aubree Gordon, Angel Balmaseda, Guillermina Kuan, Eva Harris

This 18-year prospective cohort study in Nicaragua identified key distinguishing features among children with dengue, chikungunya, and Zika. Dengue was marked by basophilia, monocytopenia, abdominal pain, and leukopenia. Chikungunya was distinguished by arthralgia and the absence of papular rash, leukopenia, and conjunctival injection. Zika was characterized by generalized rash and the absence of fever, headache, myalgia, and lymphocytopenia. Notably, afebrile dengue cases were identified, which could impact current diagnostic

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2025-09-16

Identification and Characterization of Novel Chikungunya Virus Polymerase Inhibitors.

Journal: bioRxiv

Authors: Peiqi Yin, Ryan Boyce, Sainan Wang, Michael Sirrine, Alexander Leach, Dillon Chu, Dariia Vyshenska, Zafer Sahin, Jenny Wong, Tahirah Moore, Devin Shane M Lewis, Stephen C Pelly, Dennis Liotta, Andres Merits, Alexander L Greninger, Richard K Plemper, Margaret Kielian, Robert M Cox

The study developed a high-throughput screening assay to identify novel small-molecule inhibitors of Chikungunya virus (CHIKV) replication. Two inhibitors were found to target the nsP4 RNA-dependent RNA polymerase, with specific mutations conferring resistance. In silico analyses suggested binding poses near the polymerase active site, highlighting new molecular targets for CHIKV inhibition and potential therapeutic development.

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2025-09-16

Dual regulatory role of hsa-miR-122b-5p in chikungunya virus infection via interaction with CHIKV 3'-UTR and HDAC4 modulation.

Journal: J Virol

Authors: Priyanshu Srivastava, Nimisha Mishra, Sunil Kumar Dubey, Jatin Shrinet, Sakshi Chaudhary, Ankit Kumar, Ramesh Kumar, Surbhi Malhotra, Miguel Mano, Luca Braga, Binuja Varma, Mauro Giacca, Sujatha Sunil

The study identifies hsa-miR-122b-5p as a host miRNA that directly binds to the 3'-UTR of chikungunya virus (CHIKV), suppressing viral replication in macrophages. It also targets histone deacetylase 4 (HDAC4), potentially enhancing the antiviral response by influencing nuclear translocation of phosphorylated IRF3. This dual role suggests miR-122b-5p as a therapeutic target for CHIKV infection.

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2025-07-22

Targeting the host protein G3BP1 for the discovery of novel antiviral inhibitors against Chikungunya virus.

Journal: Virology

Authors: Supreeti Mahajan, Ravi Kumar, Ankur Singh, Preeti Dhaka, Akshay Pareek, Pravindra Kumar, Shailly Tomar

The study identified seven small molecules that inhibit Chikungunya virus (CHIKV) replication by targeting the host protein G3BP1. These molecules block the interaction between viral protein nsP3 and G3BP1, reducing virus-induced stress granules and exhibiting antiviral efficacy with varying EC50 values. The findings suggest G3BP1 as a promising target for developing novel antiviral therapies.

See details

2025-09-22

Old World alphaviruses use distinct mechanisms to infect brain microvascular endothelial cells for neuroinvasion.

Journal: Cell Rep

Authors: Pablo A Alvarez, Ashley Tang, Declan M Winters, Prashant Kaushal, Angelica Medina, Maria Villalba Nieto, Karolina E Kaczor-Urbanowicz, Faith St Amant, Bryan Ramirez Reyes, Robyn M Kaake, Oliver I Fregoso, April D Pyle, Mehdi Bouhaddou, Hengli Tang, Melody M H Li

The study employs a human pluripotent stem cell-derived model to examine how Sindbis virus (SINV) and other Old World alphaviruses interact with the blood-brain barrier (BBB) to cause encephalitis. Neuroinvasive SINV strains efficiently infect BBB endothelial cells, with neuroinvasive SINV relying on PCDH10 and non-neuroinvasive SINV using multiple entry factors, including LRP1. This differential use of entry factors modulates neuroinvasion. The findings suggest that targeting BBB infection could prevent alphavirus-induced enc

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2025-09-05

Epidemiology of Chikungunya Hospitalizations, Brazil, 2014-2024.

Journal: Emerg Infect Dis

Authors: Vaneide Daciane Pedí, Denise Lopes Porto, Wagner de Jesus Martins, Giovanny Vinícius Araújo de França

Chikungunya hospitalizations in Brazil from 2014 to 2024 peaked in 2016 and 2017, with higher rates in females, those identifying as brown or black, and ages 1-19. ICU admissions were rare, but higher in children under 5 and adults over 85. The overall in-hospital mortality rate was 1.1%, rising to 21.1% for ICU patients.

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2025-08-01

Multiple early local transmissions of chikungunya virus, Mainland France, from May 2025.

Journal: Euro Surveill

Authors: Lucie Fournier, Guillaume André Durand, Amandine Cochet, Elise Brottet, Caroline Fiet, Quiterie Mano, Catarina Krug, Laura Verdurme, Thomas Blanchot, Rémi Fournier, Investigation team, Marie-Claire Paty, Gilda Grard, Florian Franke, Clémentine Calba

The study describes a 2025 chikungunya outbreak in Réunion Island, France, with 1,911 imported cases in Mainland France by July 10th, primarily from Réunion. Ten local outbreaks in five French regions, involving 27 cases, were identified from May to mid-July, earlier than previous years. The mosquito vector, Aedes albopictus, is widespread in France, and early transmission events during the vector's active season are noted.

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2025-08-06

Perinatal outcomes of symptomatic chikungunya, dengue and Zika infection during pregnancy in Brazil: a registry-based cohort study.

Journal: Nat Commun

Authors: Thiago Cerqueira-Silva, Laura C Rodrigues, Neil Pearce, Maria Gloria Teixeira, Maria da Conceição Nascimento Costa, Luciana Cardim, Viviane S Boaventura, Deborah A Lawlor, Mauricio L Barreto, Enny S Paixao

Symptomatic chikungunya, dengue, and Zika infections during pregnancy were associated with increased risks of preterm birth, low birth weight, congenital anomalies, low Apgar scores, and neonatal death. Zika infection showed the strongest association with congenital anomalies.

See details

Relevant news

This section presents official reports from health agencies, manufacturers and press releases with reliable sources.

2025-09-05

Outbreak of locally acquired chikungunya in Eybens

Source: PRS

An outbreak of 26 locally acquired chikungunya cases in Eybens, France, has been identified. A public meeting is planned to inform residents about the outbreak and the importance of controlling the Asian tiger mosquito, the disease vector.

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2025-08-20

Launch of an investigation into chikungunya exposure in Reunion

Source: PRS

The study will measure chikungunya seroprevalence across Réunion Island, involving nearly 1,500 participants from all districts. Blood samples will be tested for antibodies to document current immunity, estimate the 2025 epidemic's extent, and refine future risk analysis. Results will guide prevention strategies, epidemiological surveillance, and antivectorial control, with participants receiving their immunity status.

See details

2025-08-29

PAHO sounds alert for local chikungunya outbreaks, expanded Oropouche spread

Source: CIDRAP

PAHO has issued an alert for increased vigilance against chikungunya and Oropouche viruses in the Americas. Over 212,000 chikungunya cases and 12,700 Oropouche cases have been reported this year, with a concerning shift in chikungunya genotypes and expanded Oropouche spread. PAHO urges enhanced surveillance, medical management, and vector control, along with community engagement to mitigate risks.

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2025-09-17

Resurgence of chikungunya cases and other mosquito-borne diseases: stay vigilant, the season is not over!

Source: PRS

The abstract reports a surge in locally transmitted mosquito-borne diseases in France, including 484 chikungunya, 21 dengue, and 32 West Nile virus cases in new regions. Health authorities urge vigilance, preventive measures, and immediate medical consultation for symptoms. Travelers are advised to protect against mosquito bites and monitor for symptoms upon return.

See details

Clinical Studies

This section presents relevant clinical trials.

2025-05-27

A Safety and Immunogenicity Study of CHIKV VLP Vaccine in Children.

Status: Recruiting

Sponsor(s): Bavarian Nordic (Group)

The goal of this multi-center, randomized, double-blind, placebo-controlled study is to evaluate the safety and immunogenicity of CHIKV VLP Vaccine in children 2 to \<12 years of age.

See details

2025-04-15

Chikungunya Virus Detection in Semen

Status: Not yet recruiting

Sponsor(s): Centre Hospitalier Universitaire de Toulouse, Agence de La Biomédecine

Chikungunya is an arboviral disease transmitted by Aedes mosquitoes, present in intertropical zones and Europe. In August 2024, autochthonous cases appeared on Réunion, followed by a large epidemic. In March 2025, the incidence surpassed 2,000 cases per week. Due to a lack of data, the Haut Comité de Santé Publique issued an unfavorable opinion on using substances of human origin during the epidemic. Although the presence of Chikungunya virus genome in semen has been reported in 7 men, the incidence of viral excretion is unknown. This raises concerns about the risk of sexual transmission and infectivity, especially in assisted reproductive technologies. Previous studies on other arboviruses (Zika, dengue) have explored genital excretion. The goal of this prospective pilot study is to investigate Chikungunya virus presence and infectivity in semen, as well as to evaluate the effectiveness of sperm preparation methods in obtaining virus-free gametes. Fifteen patients with acute Chikungunya virus infection will provide blood, urine, and semen samples at different time points (7, 15, 30, 60, 90, and 180 days post-symptom onset). Seminal plasma, native sperm cells, and prepared sperm fractions will be tested for Chikungunya virus RNA at the University Hospital of La Réunion and Toulouse. This study will provide insights into viral excretion patterns and help improve the safety of medically assisted reproduction in epidemic situations.

See details

2025-04-08

Real-world Effectiveness, Safety and Immunogenicity of Chikungunya Vaccination in Populations at Risk of Severe or Complicated Forms: Prospective Study in La Réunion

Status: Recruiting

Sponsor(s): Centre Hospitalier Universitaire de La Réunion, ANRS, Emerging Infectious Diseases, Région La Réunion, ARS La Réunion, Direction Générale de l'offre de Soins (DGOS)

Against the backdrop of a growing chikungunya epidemic in La Réunion, this prospective study will assess the real-life efficacy, safety and immunogenicity of IXCHIQ® vaccine in vulnerable individuals (seniors, comorbid patients), defined by the French Health Autority (HAS) as at risk of severe or complicated forms and/or chronic disabling forms (chronic arthritis, chronic fatigue phenotypes). This study will also provide input for the preparation of a cluster randomized trial on a population scale.

See details

2025-04-28

Trial to Evaluate the Immunogenicity and Safety of the Co-administration of Live Attenuated Dengue and Chikungunya Vaccines Compared to Separate Administration in Adults Aged 18 to 59 Years.

Status: Not yet recruiting

Sponsor(s): Instituto Butantan

This randomized, controlled, double blind trial aims at assessing the safety and immunogenicity profiles of the co-administered Live Attenuated Dengue and Chikungunya vaccines comparatively to the isolated administration, in the adult population aged 18 to 59 years without prior exposure to either arbovirus.

See details

2025-09-17

Against Chikungunya Virus and Neonatal Infection

Status: Not yet recruiting

Sponsor(s): Centre Hospitalier Universitaire de La Réunion

The goal of this clinical trial is to learn if administration of plasma, from a whole blood donation from an individual who has declared a Chikungunya infection for less than 6 months , to a newborn, whose mother has a peripartum chikungunya infection, will have an impact on the proportion of newborns surviving without encephalitis/encephalopathy (EE) within the first 5 days of life. Researchers will compare results to an observational study of 30 newborns who couldn't have been proposed to participate at the clinical trial, because of delay of diagnosis or delay of transfer to hospital which doesn't allow transfusion or parents not accepting plasma transfusion to the newborn. Participants of the clinical trial will: * receive a transfusion, * visit the clinic and undergo biological tests every day until day 7 and once between 1 and 3 months. Participant of observational study as part of their regular medical care, and biological data will be reused for the research from the mother's diagnosis until the newborn reaches 3 months of age

See details

2024-10-30

Trial of an Inactivated Chikungunya Virus Vaccine

Status: Active not recruiting

Sponsor(s): Najít Technologies (United States), National Institute of Allergy and Infectious Diseases (NIAID)

This trial will be a randomized, placebo controlled, double-blind (within dosing group), dose escalation Phase 1 trial, evaluating dosages of 2.5 mcg and 8 mcg of HydroVax-005 CHIKV vaccine given intramuscularly on Day 1 and Day 29 in up to 48 healthy adults healthy adults ≥ 18 and \< 50 years of age. The primary objective is to assess the safety and reactogenicity of the HydroVax-005 CHIKV vaccine administered intramuscularly in a two-dose series on Days 1 and 29 at a dose of 2.5 mcg or a dose of 8 mcg.

See details

2025-09-01

Assessment of Chikungunya Virus Seroprevalence Before VLA1553 Vaccination in the Municipalities Selected for Participation in the VLA1553 Pilot Vaccination Strategy in Brazil

Status: Enrolling by invitation

Sponsor(s): Valneva Austria GmbH, Fundação Butantan, Coalition for Epidemic Preparedness Innovations

This is a cross-sectional serosurvey using household cluster sampling conducted before the VLA1553 pilot vaccination strategy will be implemented in about 10 municipalities in Brazil.

See details

Guidelines and practical information

This section lists official manuals of recommendations for clinical practice or public health policy published by leading health organizations.

HAS	**Utilisation du vaccin IXCHIQ dans le contexte épidémique de chikungunya dans les territoires de La Réunion et de Mayotte (2025)**
CDC	**Information for traveller's : Chikungunya (2024)**
WHO	**Guidelines on Clinical Management of Chikungunya Fever (2019)**
ECDC	**Guidelines for mosquito surveillance**
Ministère de la Santé et de la Prévention	**Recommandations nationales sur la prise en charge du chikungunya (Formes aiguës, formes persistantes) (2014)**
PAHO	**Preparedness and Response for Chikungunya Virus Introduction in the Americas (2011)**
WHO	**Guidelines for prevention and control of Chikungunya fever (2009)**

Fact sheets

Transmission

CHIKV is an RNA virus from the Alphavirus genus, part of the Togaviridae family, originating in Africa. The disease's name means `the one who walks bent over,` due to joint and muscle pain. There are four known clades: West African, Asian, ECSA (East/Central/South African), and IOL (Indian Ocean Lineage). The virus is mainly transmitted to humans through Aedes mosquitoes (Aedes aegypti and Aedes albopictus). Less common transmission can occur via contact with infected blood, especially in laboratory and healthcare settings (<1%). Vertical transmission from mother to child during the second trimester of pregnancy and intra-partum transmission during viremia at delivery have also been reported.

Diagnosis

For suspected cases, PCR testing should be done as soon as possible after symptoms appear (viremia lasts about 8 days). Isolated IgM antibodies require a second sample at least 10 days later to confirm seroconversion (IgG appearance). IgG presence alone does not confirm recent infection due to their prolonged persistence.

Symptoms

CHIKV infection is symptomatic in 80% of cases and typically progresses through three clinical stages: acute (day 1–21), post-acute (day 21–3 months), and chronic (beyond 3 months). Initial symptoms are non-specific (fever, headache, rash, muscle pain, and joint pain). Severe forms are more likely in patients with comorbidities, pregnant women, immunocompromised individuals, and people at extreme ages. Mortality for severe cases ranges from 0.5% to 1.3%. Chronic forms, which significantly affect quality of life, impact 20–60% of patients depending on the viral lineage and care quality.

Treatment

There is no approved specific treatment for CHIKV. Management focuses on relieving symptoms and treating rheumatologic complications.

Vaccination

IXCHIQ, developed by Valneva, is the only approved chikungunya vaccine. It is a live-attenuated vaccine given as a single intramuscular dose. It has FDA and EMA approval for individuals aged 18 and older who are not immunocompromised.