



Better Health, Brighter Future

News Release

Takeda's QDENGAR[®]▼ (Dengue Tetravalent Vaccine [Live, Attenuated]) Approved in Indonesia for Use Regardless of Prior Dengue Exposure

OSAKA, Japan, August 23, 2022 – Takeda Pharmaceutical Company Limited ([TSE:4502/NYSE:TAK](https://www.takeda.com/stock)) announced the company's dengue vaccine, QDENGAR[®] (Dengue Tetravalent Vaccine [Live, Attenuated]) (TAK-003), was approved by the Indonesia National Agency for Drug and Food Control, Badan Pengawas Obat dan Makanan (BPOM), for the prevention of dengue disease caused by any serotype in individuals six years to 45 years of age. Please see the attached press release for details.

As the financial impact of the approval is immaterial, there is no change in Takeda's full year consolidated reported forecast for the fiscal year ending March 31, 2023 (FY2022).

###

Media Contact:

Jun Saito

jun.saito@takeda.com

+81 (0) 3-3278-2325

Investor Contact:

Christopher O'Reilly

takeda.ir.contact@takeda.com

+81 (0) 3-3278-2306



News Release

Takeda's QDENGAR[®]▼ (Dengue Tetravalent Vaccine [Live, Attenuated]) Approved in Indonesia for Use Regardless of Prior Dengue Exposure

- *Indonesia National Agency for Drug and Food Control, BPOM, Approved QDENGAR (TAK-003) for Use in Individuals Six Years to 45 Years of Age¹*
- *QDENGAR is the Only Dengue Vaccine Approved in Indonesia for Use in Individuals Without Need for Pre-vaccination Testing*
- *Indonesia Approval Marks the First for QDENGAR, Takeda's First Marketed Vaccine Outside of Japan*

OSAKA, Japan, and CAMBRIDGE, Massachusetts, August 22, 2022 – [Takeda \(TSE:4502/NYSE:TAK\)](#) today announced the company's dengue vaccine, QDENGAR[®] (Dengue Tetravalent Vaccine [Live, Attenuated]) (TAK-003), was approved by the Indonesia National Agency for Drug and Food Control, Badan Pengawas Obat dan Makanan (BPOM), for the prevention of dengue disease caused by any serotype in individuals six years to 45 years of age. The use of QDENGAR should be in accordance with official recommendations. QDENGAR is the only dengue vaccine approved in Indonesia for use in individuals regardless of previous dengue exposure and without the need for pre-vaccination testing.¹

“Dengue can affect anyone living in or traveling to endemic areas - regardless of age, health and socio-economic circumstances,” said Gary Dubin, president of Takeda's Vaccine Business Unit. “Developing this innovative dengue vaccine has been an exciting challenge, and its approval in Indonesia is an important achievement for Takeda and for public health. We're proud to introduce QDENGAR as a new dengue prevention tool to the people of Indonesia, and we will continue to work with additional regulatory agencies to make QDENGAR available globally.”

Dengue is a mosquito-borne viral disease that poses a significant global public health threat, with prevalence in over 125 countries.² In recent years, Indonesia has experienced almost half of the dengue disease burden within Southeast Asia and continues to suffer from one of the highest burdens of dengue in the world.^{3,4} In the first half of 2022 alone, Indonesia reported over 63,000 dengue cases and nearly 600 deaths spread across 455 cities in 34 provinces.⁵

“As a doctor, I have seen firsthand the burden dengue disease places on the patients and communities I serve in Indonesia. There is an ongoing fear of an outbreak and contracting the disease, experiencing the physical setbacks dengue can cause as well as the potential financial impacts,” said Dr. Anggraini Alam, Sp.A(K), pediatric infectious disease consultant. “Vaccination will offer health care providers in Indonesia a welcomed advancement in dengue prevention, along with vector control, allowing us to reduce the burden of dengue and protect the broader population.”

The approval of QDENGAR is based on results through three years after vaccination from the ongoing Phase 3 [Tetravalent Immunization against Dengue Efficacy Study \(TIDES\)](#) trial that enrolled over 20,000 healthy children and adolescents ages four to 16 years living in dengue-endemic areas in Asia and Latin America. QDENGAR demonstrated continued overall protection against dengue illness and hospitalization three years after vaccination, regardless of an

individual's previous dengue exposure.¹ QDENGGA has been generally well tolerated, with no important safety risks identified in the TIDES trial, to date.⁶ Takeda recently presented long-term safety and efficacy results from the TIDES trial through 54 months of follow-up, which further validated the vaccine's efficacy and safety profile.

Takeda is proud to make QDENGGA available to health care providers and their eligible patients in Indonesia and to work with BPOM and local health experts to make the vaccine accessible in the coming months. QDENGGA is currently undergoing regulatory review for the prevention of dengue in children and adults in the European Union (EU) and in dengue-endemic countries outside the EU through the EU-M4all (previously Article 58) procedure. It is not approved for use in other countries.

About QDENGGA® ▼ (Dengue Tetravalent Vaccine [Live, Attenuated])

QDENGGA® (TAK-003) is a dengue vaccine that is based on a live-attenuated dengue serotype 2 virus, which provides the genetic “backbone” for all four dengue virus serotypes and is designed to protect against any of these serotypes.⁷

In Indonesia, QDENGGA is indicated for the prevention of dengue disease caused by any dengue virus serotype in individuals six years to 45 years of age and should be administered subcutaneously as a 0.5 mL dose at a two-dose (0 and 3 months) schedule pursuant to approved dosing regimen.¹ The use of QDENGGA should be in accordance with official recommendations.

QDENGGA was assessed across a robust clinical development program that included various Phase 1, Phase 2 and Phase 3 trials, and more than 28,000 participants, including Takeda's pivotal Tetravalent Immunization against Dengue Efficacy Study (TIDES) trial. The TIDES trial met its primary endpoint of overall vaccine efficacy (VE) against virologically-confirmed dengue (VCD) with 80.2% efficacy at 12-months follow-up. The trial also met all secondary endpoints for which there were a sufficient number of dengue cases at 18-months follow-up.^{8,9} The VE result in preventing hospitalization due to VCD fever was 90.4%. Up to three years after the second dose, VE in preventing VCD was shown for all four serotypes in baseline dengue seropositive subjects. In baseline seronegative subjects, VE was shown for DENV-1 and DENV-2, but not shown for DENV-3 and could not be shown for DENV-4 due to lower incidence of cases.¹ Through four and a half years (54 months after the second dose), QDENGGA demonstrated continued overall protection, with sustained overall VE of 61.2% and 84.1% VE against hospitalized dengue.⁶

QDENGGA has been generally well tolerated, with no evidence of disease enhancement in vaccine recipients, and no important safety risks have been identified in the TIDES trial, to date.⁶

Important Safety Information

Please consult the Summary of Product Characteristics (SmPC) before prescribing.

Guidance for use: QDENGGA should be administered by subcutaneous injection preferably in the upper arm in the region of deltoid. QDENGGA must not be injected intravascularly, intradermally or intramuscularly. Vaccination should be postponed in subjects suffering from an acute severe febrile illness. The presence of a minor infection, such as a cold, should not result in a deferral of vaccination. Vaccination should be preceded by a review of the individual's medical history (especially with regards to previous vaccination and possible hypersensitivity reactions which occurred after vaccination). Appropriate medical treatment and supervision must always be readily available in the event of a rare anaphylactic reaction following administration of the vaccine. Anxiety-related reactions, including vasovagal reactions (syncope), hyperventilation or stress-related reactions may occur in association with vaccination as a psychogenic response to the needle injection. It is important that precautions are in place to avoid injury from fainting. A protective immune response with QDENGGA may not be elicited in all vaccinees against all serotypes of dengue virus and may decline over time. It is currently unknown whether a lack of protection could result in an increased severity of dengue. It is recommended to continue personal protection measures against mosquito bites after vaccination. Individuals should seek medical care if they develop dengue symptoms or dengue warning signs.

Contraindications: Hypersensitivity to the active substances or excipients listed, or to previous QDenga dose. Individuals with congenital or acquired immune deficiency, including immunosuppressive therapies such as chemotherapy or high doses of systemic corticosteroids (eg, 20 mg/day or 2 mg/kg body weight/day of prednisone for 2 weeks or more) within 4 weeks prior to vaccination. Individuals with symptomatic HIV infection or asymptomatic HIV infection with impaired immune function. Pregnant and breast-feeding women.

Adverse Reactions: Most frequently reported reactions in subjects 4 to 60 years of age were injection site pain (50%), headache (35%), myalgia (31%), injection site erythema (27%), malaise (24%), asthenia (20%), and fever (11%). Very common: ($\geq 1/10$ of subjects): upper respiratory tract infection^a, decreased appetite^c, irritability^c, headache, somnolence^c, myalgia, injection site pain, injection site erythema, malaise, asthenia, fever. Common ($\geq 1/100$ to $< 1/10$): nasopharyngitis, pharyngotonsillitis^b, injection site swelling, injection site bruising^c, injection site pruritus^c, influenza like illness. ^aIncludes upper respiratory tract infection and viral upper respiratory tract infection. ^bIncludes pharyngotonsillitis and tonsillitis. ^cCollected in children 4–6 years of age in clinical studies. ^dIncludes rash, viral rash, rash maculopapular, and rash pruritic. ^eReported in adults in clinical studies. **Refer to the SmPC for details on full side effect profile and interactions.**

▼ This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See Section 4.8 of the SmPC for how to report adverse reactions.

For full prescribing information, please see the [Summary of Product Characteristics \(SmPC\)](#) for QDenga® ▼.

Please consult with your local regulatory agency for approved labeling in your country.

The drug information contained herein is intended to disclose corporate information. Nothing contained in this document should be considered a solicitation, promotion, or indication for any prescription drug, including those currently under development.

About EU-M4all¹⁰

EU-M4all (or EU-Medicines for all) is a procedure designed to facilitate patient access to essential medicines or vaccines intended to prevent or treat diseases of major public health interest. Through the EU-M4all procedure (previously known as the Article 58 procedure), the EMA, in cooperation with the World Health Organization (WHO), can provide scientific opinion on medicines and vaccines for public health priority diseases that are intended for markets outside of the EU.

About the Phase 3 TIDES (DEN-301) Trial

The double-blind, randomized, placebo-controlled Phase 3 Tetravalent Immunization against Dengue Efficacy Study (TIDES) trial is evaluating the safety and efficacy of two doses of TAK-003 in the prevention of laboratory-confirmed symptomatic dengue fever of any severity and due to any of the four dengue virus serotypes in children and adolescents.⁸ Study participants were randomized 2:1 to receive two doses of TAK-003 0.5 mL or placebo on Months 0 and 3, administered subcutaneously.⁸ The study is comprised of five parts. Part 1 and the primary endpoint analysis evaluated vaccine efficacy (VE) and safety through 12 months after the second dose.⁸ Part 2 continued for an additional six months to complete the assessment of the secondary endpoints of VE by serotype, baseline serostatus and disease severity, including VE against hospitalized dengue.⁸ Part 3 evaluated VE and long-term safety by following participants for an additional two and a half to three years, as per World Health Organization (WHO) recommendations.¹¹ Part 4 will evaluate efficacy and safety for 13 months following booster vaccination, and Part 5 will evaluate long-term efficacy and safety for one year after completion of Part 4.¹¹

The trial is taking place at sites in dengue-endemic areas in Latin America (Brazil, Colombia, Panama, the Dominican Republic and Nicaragua) and Asia (Philippines, Thailand and Sri Lanka) where there are unmet needs in dengue prevention and where severe dengue is a leading cause of serious illness and death among children.¹¹ Baseline blood samples were collected from all individuals participating in the trial to allow for evaluation of safety and efficacy based

on serostatus. Takeda and an independent Data Monitoring Committee of experts are actively monitoring safety on an ongoing basis.

About Dengue

Dengue is a mosquito-borne viral disease that spreads rapidly around the world and was one of the WHO's top 10 threats to global health in 2019.^{2,12} Dengue is mainly spread by *Aedes aegypti* mosquitoes and, to a lesser extent, *Aedes albopictus* mosquitoes. It is caused by any of four dengue virus serotypes, each of which can cause dengue fever or severe dengue. The prevalence of individual serotypes varies across different geographies, countries, regions, seasons and over time.¹³ Recovery from infection by one serotype provides lifelong immunity against only that serotype, and later exposure to any of the remaining serotypes might be associated with an increased risk of severe disease.²

Dengue is pandemic prone, and outbreaks are observed in tropical and sub-tropical areas and have recently caused outbreaks in parts of the continental United States and Europe.^{14,15} Approximately half of the world now lives under the threat of dengue, which is estimated to cause 390 million infections and around 20,000 deaths globally each year.^{14,16} The dengue virus can infect people of all ages and is a leading cause of serious illness among children in some countries in Latin America and Asia.¹⁴

Takeda's Commitment to Vaccines

Vaccines prevent 3.5 to 5 million deaths each year and have transformed global public health.¹⁷ For more than 70 years, Takeda has supplied vaccines to protect the health of people in Japan. Today, Takeda's global vaccine business is applying innovation to tackle some of the world's most challenging infectious diseases, such as dengue, COVID-19, pandemic flu and Zika. Takeda's team brings an outstanding track record and a wealth of knowledge in vaccine development and manufacturing to advance a pipeline of vaccines to address some of the world's most pressing public health needs. For more information, visit www.Takeda.com/what-we-do/areas-of-focus/vaccines/.

About Takeda

Takeda is a global, values-based, R&D-driven biopharmaceutical leader headquartered in Japan, committed to discover and deliver life-transforming treatments, guided by our commitment to patients, our people and the planet. Takeda focuses its R&D efforts on four therapeutic areas: Oncology, Rare Genetics and Hematology, Neuroscience, and Gastroenterology (GI). We also make targeted R&D investments in Plasma-Derived Therapies and Vaccines. We are focusing on developing highly innovative medicines that contribute to making a difference in people's lives by advancing the frontier of new treatment options and leveraging our enhanced collaborative R&D engine and capabilities to create a robust, modality-diverse pipeline. Our employees are committed to improving quality of life for patients and to working with our partners in health care in approximately 80 countries and regions. For more information, visit <https://www.takeda.com>.

Media Contacts:

Japanese Media

Jun Saito

jun.saito@takeda.com

+81 (0) 3-3278-2325

U.S. and International Media

Rachel Higgins

rachel.higgins@takeda.com

+1 917-796-8703

Important Notice

For the purposes of this notice, "press release" means this document, any oral presentation, any question and answer session and any written or oral material discussed or distributed by Takeda Pharmaceutical Company Limited ("Takeda") regarding this release. This press release (including any oral briefing and any question-and-answer in connection with it)

is not intended to, and does not constitute, represent or form part of any offer, invitation or solicitation of any offer to purchase, otherwise acquire, subscribe for, exchange, sell or otherwise dispose of, any securities or the solicitation of any vote or approval in any jurisdiction. No shares or other securities are being offered to the public by means of this press release. No offering of securities shall be made in the United States except pursuant to registration under the U.S. Securities Act of 1933, as amended, or an exemption therefrom. This press release is being given (together with any further information which may be provided to the recipient) on the condition that it is for use by the recipient for information purposes only (and not for the evaluation of any investment, acquisition, disposal or any other transaction). Any failure to comply with these restrictions may constitute a violation of applicable securities laws. The companies in which Takeda directly and indirectly owns investments are separate entities. In this press release, “Takeda” is sometimes used for convenience where references are made to Takeda and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies.

Forward-Looking Statements

This press release and any materials distributed in connection with this press release may contain forward-looking statements, beliefs or opinions regarding Takeda’s future business, future position and results of operations, including estimates, forecasts, targets and plans for Takeda. Without limitation, forward-looking statements often include words such as “targets”, “plans”, “believes”, “hopes”, “continues”, “expects”, “aims”, “intends”, “ensures”, “will”, “may”, “should”, “would”, “could” “anticipates”, “estimates”, “projects” or similar expressions or the negative thereof. These forward-looking statements are based on assumptions about many important factors, including the following, which could cause actual results to differ materially from those expressed or implied by the forward-looking statements: the economic circumstances surrounding Takeda’s global business, including general economic conditions in Japan and the United States; competitive pressures and developments; changes to applicable laws and regulations, including global health care reforms; challenges inherent in new product development, including uncertainty of clinical success and decisions of regulatory authorities and the timing thereof; uncertainty of commercial success for new and existing products; manufacturing difficulties or delays; fluctuations in interest and currency exchange rates; claims or concerns regarding the safety or efficacy of marketed products or product candidates; the impact of health crises, like the novel coronavirus pandemic, on Takeda and its customers and suppliers, including foreign governments in countries in which Takeda operates, or on other facets of its business; the timing and impact of post-merger integration efforts with acquired companies; the ability to divest assets that are not core to Takeda’s operations and the timing of any such divestment(s); and other factors identified in Takeda’s most recent Annual Report on Form 20-F and Takeda’s other reports filed with the U.S. Securities and Exchange Commission, available on Takeda’s website at: <https://www.takeda.com/investors/sec-filings/> or at www.sec.gov. Takeda does not undertake to update any of the forward-looking statements contained in this press release or any other forward-looking statements it may make, except as required by law or stock exchange rule. Past performance is not an indicator of future results and the results or statements of Takeda in this press release may not be indicative of, and are not an estimate, forecast, guarantee or projection of Takeda’s future results.

Medical information

This press release contains information about products that may not be available in all countries, or may be available under different trademarks, for different indications, in different dosages, or in different strengths. Nothing contained herein should be considered a solicitation, promotion or advertisement for any prescription drugs including the ones under development.

###

¹ Takeda. [QDENGGA Summary of Product Characteristics](#). Retrieved August 2022.

² World Health Organization. Fact Sheet. [Dengue and Severe Dengue](#). January 2022. Retrieved August 2022.

-
- ³ Shepard DS, Undurraga EA, Halasa YA. Economic and disease burden of dengue in Southeast Asia. *PLoS Negl Trop Dis*. 2013;7(2). doi:10.1371/journal.pntd.0002055
- ⁴ Sasmono, R.T., et al. Distinct Dengue Disease Epidemiology, Clinical, and Diagnosis Features in Western, Central, and Eastern Regions of Indonesia, 2017 – 2019. *Front Med*. 2020;7:582235.
- ⁵ Received from Ministry of Health Republic Indonesia. Data Penambahan Kasus DBD Tahun 2022. Received July 20, 2022.
- ⁶ Tricou, V. Efficacy and Safety of Takeda’s Tetravalent Dengue Vaccine Candidate (TAK-003) After 4.5 Years of Follow-Up. Presented at the 8th Northern European Conference of Travel Medicine; June 2022.
- ⁷ Huang CY-H, et al. Genetic and phenotypic characterization of manufacturing seeds for tetravalent dengue vaccine (DENVax). *PLoS Negl Trop Dis*. 2013;7:e2243.
- ⁸ Biswal S, et al. Efficacy of a tetravalent dengue vaccine in healthy children and adolescents. *N Engl J Med*. 2019;2019;381:2009-2019.
- ⁹ Biswal S, et al. Efficacy of a tetravalent dengue vaccine in healthy children aged 4-16 years: a randomized, placebo controlled, phase 3 trial. *Lancet*. 2020. 2020;395:1423-1433.
- ¹⁰ The European Medicines Agency. Medicines for use outside the EU — EU-M4all. July 2020. Retrieved August 2022.
- ¹¹ Gov. Efficacy, Safety and Immunogenicity of Takeda’s Tetravalent Dengue Vaccine (TDV) in Healthy Children (TIDES). Retrieved August 2022.
- ¹² World Health Organization. Ten threats to global health in 2019. 2019. Retrieved August 2022.
- ¹³ Guzman MG, et al. Dengue: a continuing global threat. *Nature Reviews Microbiology*. 2010;8:S7-S16.
- ¹⁴ Knowlton K, et al. Mosquito-Borne Dengue Fever Threat Spreading in the Americas. The Natural Resources Defense Council (NRDC). 2009. Retrieved August 2022.
- ¹⁵ Chan E, et al. Using web search query data to monitor dengue epidemics: a new model for neglected tropical disease surveillance. *PLoS Negl Trop Dis*. 2011;5:e1206.
- ¹⁶ Centers for Disease Control and Prevention. About Dengue: What You Need to Know. May 2019. Retrieved August 2022.
- ¹⁷ World Health Organization. Vaccines and immunization. 2022. Retrieved August 2022.