

FDA accepts nirsevimab application as first protective option against RSV disease for all infants

- * Nirsevimab would be the first broadly protective option against RSV disease designed for all infants, if approved
- * Nirsevimab delivered consistent protection of approximately 80% against medically attended RSV disease across several trials in healthy term and preterm infants and has been approved under accelerated review in the EU and the UK

Paris, January 5, 2023. The U.S. Food and Drug Administration (FDA) Center for Drug Evaluation and Research (CDER) has accepted the Biologics License Application (BLA) for nirsevimab for the prevention of respiratory syncytial virus (RSV) lower respiratory tract disease in newborns and infants entering or during their first RSV season and for children up to 24 months of age who remain vulnerable to severe RSV disease through their second RSV season.

Nirsevimab is being developed jointly by Sanofi and AstraZeneca and, if approved, would be the first protective option for the broad infant population, including those born healthy, at term or preterm, or with specific health conditions. The FDA has indicated they will work to expedite their review. The Prescription Drug User Fee Act date, the FDA target action date for their decision, is in the third quarter of 2023.

Thomas Triomphe

Executive Vice President, Vaccines, Sanofi

“This is a landmark file acceptance in the US as it brings us one step closer to offering the first and only broadly protective option against RSV disease designed for all infants. Given the unprecedented number of otherwise healthy infants who have been hospitalized with RSV this year in the US and the recurrent pattern of RSV epidemics year after year, it is our intention to make nirsevimab available, if approved in time, for the 2023/2024 season to help alleviate the burden of RSV on families and the healthcare system.”

RSV is a very contagious virus that can lead to serious respiratory illness, according to the Centers for Disease Control and Prevention (CDC).¹⁰ In the US, RSV is the leading cause of hospitalisation for babies under one.¹¹ Any infant can be hospitalized in their first RSV season: about 75% of infants hospitalized for RSV in the U.S. are born at term, with no underlying conditions.¹²⁻¹⁴ The current 2022/23 RSV season has placed a particularly high burden on infants and families in the United States with the American Academy of Pediatrics (AAP) requesting the White House declare an emergency to support the national response to the alarming surge of pediatric hospitalizations due to RSV and influenza.

Dr William Muller

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“A substantial burden of disease from RSV affects infants, families, and healthcare providers every year. Effective interventions to prevent RSV are a critical need. This year in the US, we’ve seen first-hand how frightening the impact of this respiratory disease is on our patients and how stressful it is on the healthcare system, highlighting the urgency of addressing this problem.”

The submission was based on results from the Phase 3 MELODY, Phase 2/3 MEDLEY and Phase

2b trials.¹⁻⁸ Results across the MELODY and Phase 2b trials showed that nirsevimab demonstrated consistent protection of approximately 80%, against medically attended RSV disease with a single dose.¹⁻⁵

In these trials, nirsevimab helped protect an all-infant population (including healthy term, late preterm, and preterm infants, as well as infants with specific health conditions) against RSV disease requiring medical care, including physician office, urgent care, emergency room visits and hospitalizations, through the duration of the RSV season.¹⁻⁸ The safety profile of nirsevimab was similar to placebo. Nirsevimab also demonstrated a comparable safety and tolerability profile to palivizumab in the Phase 2/3 MEDLEY trial.⁷⁻⁹

About nirsevimab

In the U.S., nirsevimab is an investigational single-dose long-acting antibody designed to help protect all infants from birth through their first RSV season and for children up to 24 months of age who remain vulnerable to severe RSV disease through their second RSV season.

Nirsevimab has been developed to offer newborns and infants direct RSV protection via an antibody to help prevent lower respiratory tract infection (LRTI) caused by RSV. Monoclonal antibodies do not require the activation of the immune system to help offer timely, rapid and direct protection against disease.¹⁵

In March 2017, Sanofi and AstraZeneca announced an [agreement](#) to develop and commercialize nirsevimab. Under the terms of the agreement, AstraZeneca leads all development and manufacturing activities and Sanofi leads commercialization activities and records revenues. Under the terms of the global agreement, Sanofi made an upfront payment of €120m, has paid a development milestone of €30m and will pay up to a further €465m upon achievement of certain development and sales-related milestones. The two companies share all costs and profits.

Nirsevimab has been granted designations to facilitate expedited development by several regulatory agencies around the world. These include Breakthrough Therapy Designation by the China Center for Drug Evaluation under the National Medical Products Administration; [Breakthrough Therapy Designation](#) from the FDA; access granted to the European Medicines Agency (EMA) [PRIority MEDicines](#) scheme; Promising Innovative Medicine designation by the UK Medicines and Healthcare products Regulatory Agency; and named “a medicine for prioritized development” under the Project for Drug Selection to Promote New Drug Development in Pediatrics by the Japan Agency for Medical Research and Development (AMED). Nirsevimab was approved by the European Commission in October 2022, and by the UK Medicines and Healthcare products Regulatory Agency (MHRA) in November 2022.^{16,17}

About the clinical trials

The Phase 2b trial was a randomized, placebo-controlled trial designed to measure the efficacy of nirsevimab against medically attended LRTI through 150 days post-dose. Healthy preterm infants of 29–<35 weeks’ gestation (n= 1,453) were randomized (2:1) to receive a single 50mg intramuscular injection of nirsevimab (n= 969) or placebo (n= 484) at the RSV season start.^{3,4} The primary endpoint was met, significantly reducing the incidence of medically attended LRTI caused by RSV by 70.1% (95% CI: 52.3, 81.2) compared to placebo.^{3,4} The proposed dosing regimen was recommended based on further exploration of the Phase 2b data.³ When considering the dosing regimen recommended for approval in this study, nirsevimab reduced the incidence of medically attended LRTI caused by RSV by 86.2% (95% CI: 68.0, 94.0) in gestational age ≥29 to <35 weeks.^{3,4} The subsequent Phase 3 study, MELODY, applied the recommended dosing regimen.^{1,2}

The Phase 3 MELODY (primary cohort) trial was a randomized, placebo-controlled trial conducted across 21 countries designed to determine efficacy of nirsevimab against medically attended LRTI

due to RSV confirmed by reverse transcriptase polymerase chain reaction testing through 150 days after dosing, versus placebo, in healthy late preterm and term infants (35 weeks gestational age or greater) entering their first RSV season.^{1,2} The primary endpoint was met, significantly reducing the incidence of medically attended LRTI, such as bronchiolitis or pneumonia, caused by RSV compared to placebo.^{1,2} Infants were randomized (2:1) to receive a single 50mg (in infants weighing <5kg) or 100mg (in infants weighing ≥5kg) intramuscular injection of nirsevimab or placebo.^{1,2}

Following the analysis of the initial 1,490 infants within the MELODY primary cohort additional infants continued to be enrolled. A total of 3,012 healthy late preterm and term infants (35 weeks gestational age or greater) entering their first RSV season were randomized to receive nirsevimab (n=2,009) or placebo (n=1,003). In the exploratory analysis, a single 50mg (in infants weighing <5kg) or 100mg (in infants weighing ≥5kg) intramuscular injection of nirsevimab reduced the incidence of medically attended LRTI caused by RSV through 150 days after dosing by 76.4% (95%: CI 62.3, 85.2) compared to placebo, with an acceptable safety profile. Further, nirsevimab demonstrated a 76.8% (95%: CI 49.4, 89.4) reduction in the risk of RSV LRTI with hospitalization through 150 days after dosing compared to placebo.

MEDLEY was a Phase 2/3, randomized, double-blind, palivizumab-controlled trial with the primary objective of assessing safety and tolerability for nirsevimab in preterm infants and infants with congenital heart disease (CHD) and/or chronic lung disease of prematurity (CLD) eligible to receive palivizumab.^{7,8} Between July 2019 and May 2021, approximately 918 infants entering their first RSV season were randomized to receive a single 50mg (in infants weighing <5kg) or 100mg (in infants weighing ≥5kg) intramuscular injection of nirsevimab or palivizumab. Safety was assessed by monitoring the occurrence of treatment emergent adverse events (TEAEs) and treatment emergent severe adverse events (TESAEs) through 360 days post-dose.^{7,8} Serum levels of nirsevimab following dosing (on day 151) in this trial were comparable with those observed in the Phase 3 MELODY trial, indicating similar protection in this population to that in the healthy term and late preterm infants is likely.⁷

The safety profile of nirsevimab was similar to palivizumab in the MEDLEY Phase 2/3 and consistent with the safety profile in term and preterm infants studied in the MELODY Phase 3 trial compared to placebo.^{1-4,7,8} The most commonly reported adverse reactions were: rash 14 days post-dose, (the majority of which were mild to moderate); pyrexia (fever) within 7 days post-dose; non-serious injection site reactions within 7 days post-dose.¹⁶

Findings from the nirsevimab clinical trial program included a pre-specified pooled analysis of the Phase 3 MELODY trial (primary cohort) and the recommended dose from the Phase 2b trial, in which a relative risk reduction of 79.5% versus placebo (95% CI 65.9, 87.7; P<0.0001) was seen against medically attended LRTI, such as bronchiolitis or pneumonia, caused by RSV in infants born at term or preterm entering their first RSV season.⁵ This analysis also showed a relative risk reduction of 77.3% (95% CI 50.3, 89.7; P<0.001) against RSV LRTI hospitalizations.⁵

About RSV

RSV is a very contagious virus that can lead to serious respiratory illness for infants, according to the Centers for Disease Control and Prevention (CDC).¹⁰ In the U.S., RSV is the leading cause of hospitalization in infants under 12 months.¹¹ Approximately 75% of infants hospitalized for RSV are born at term with no underlying conditions.¹²⁻¹⁴ RSV symptoms can include runny nose, coughing, sneezing, fever, decrease in appetite, and wheezing.¹⁰ Each year RSV infection leads to approximately 500,000 emergency department visits by children under 5 years of age, which represents 1 in 4 of all RSV-related doctor visits, according to the CDC.¹⁸

About Sanofi

We are an innovative global healthcare company, driven by one purpose: we chase the miracles of science to improve people's lives. Our team, across some 100 countries, is dedicated to transforming the practice of medicine by working to turn the impossible into the possible. We provide potentially

life-changing treatment options and life-saving vaccine protection to millions of people globally, while putting sustainability and social responsibility at the center of our ambitions. Sanofi is listed on EURONEXT: SAN and NASDAQ: SNY

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1. Hammitt LL, MD et al. Nirsevimab for Prevention of RSV in Healthy Late-Preterm and Term Infants. *N Engl J Med.* 2022;386 (9): 837-846. doi: 10.1056/NEJMoa2110275.
2. *Clinicaltrials.gov. A Study to Evaluate the Safety and Efficacy of MEDI8897 for the Prevention of Medically Attended RSV LRTI in Healthy Late Preterm and Term Infants (MELODY).* <https://clinicaltrials.gov/ct2/show/NCT03979313>. Accessed December 2022.
3. *Clinicaltrials.gov. A Study to Evaluate the Safety and Efficacy of MEDI8897 for the Prevention of Medically Attended RSV LRTI in Healthy Preterm Infants. (MEDI8897 Ph2b).* <https://clinicaltrials.gov/ct2/show/results/NCT02878330>. Accessed December 2022.
4. Griffin P, MD et al. (2020). Single-Dose Nirsevimab for Prevention of RSV in Preterm Infants. *NEJM* 2020; 383: 415-425. DOI: 10.1056/NEJMoa1913556.
5. Simões, E, et al. Pooled efficacy of nirsevimab against RSV lower respiratory tract infection in preterm and term infants. *ESPID 2022 Congress; 2022 May 9-13. Hybrid Congress.*
6. Wilkins, D, et al. Nirsevimab for the prevention of respiratory syncytial virus infection: neutralizing antibody levels following a single dose. *ESPID 2022 Congress; 2022 May 9-13. Hybrid Congress.*
7. Domachowski J, MD et al. Safety of Nirsevimab for RSV in Infants with Heart or Lung Disease or Prematurity. *N Engl J Med.* 2022; 386 (9).
8. *Clinicaltrials.gov. A Study to Evaluate the Safety of MEDI8897 for the Prevention of Medically Attended Respiratory Syncytial Virus (RSV) Lower Respiratory Track Infection (LRTI) in High-risk Children.* <https://clinicaltrials.gov/ct2/show/NCT03959488> (MEDLEY). Accessed December 2022.
9. Synagis - Summary of Product Characteristics (SmPC) - (eMC) [Internet]. Available from: https://www.ema.europa.eu/en/documents/product-information/synagis-epar-product-information_en.pdf Accessed December 2022.
10. Centers for Disease Control and Prevention. RSV in Infants and Young Children. *Centers for Disease Control and Prevention.* December 18, 2020. <https://www.cdc.gov/rsv/high-risk/infants-young-children.html> Accessed December 2022.
11. Leader S, Kohlhasse K. Recent trends in severe respiratory syncytial virus (RSV) among US infants, 1997 to 2000. *J Pediatr.* 2003;143(5 Suppl):S127-S132. doi:10.1067/s0022-3476(03)00510-9.
12. Arriola CS, Kim L, Langley G, et al. Estimated burden of community-onset respiratory virus-associated hospitalizations among children aged <2 years in the United States, 2014-15. *J Pediatric Infect Dis Soc.* 2020;9(5):587-595.
13. Hall, C. B. et al. Respiratory syncytial virus-associated hospitalizations among children less than 24 months of age. *Pediatrics* 132, e341-8 (2013).
14. Gantenberg, J. R. et al. Medically Attended Illness due to Respiratory Syncytial Virus Infection Among Infants Born in the United States Between 2016 and 2020.
15. Centers for Disease Control and Prevention. Vaccines & Immunizations. August 18, 2017. <https://www.cdc.gov/vaccines/vac-gen/immunity-types.htm>. Accessed December 2022.
16. European Commission. https://www.ema.europa.eu/en/documents/product-information/beyfortus-epar-product-information_en.pdf. Accessed December 2022.

17. Medicines & Healthcare products Regulatory Agency.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1119040/Marketing_authorisations_granted_1_-_14_November_2022.pdf. Accessed December 2022.
18. Hall, C. B. et al. The burden of respiratory syncytial virus infection in young children. *New Engl J Medicine* 360, 588–98 (2009)