NEWS RELEASE

Merck Announces U.S. FDA Approval of VAXNEUVANCE™ (Pneumococcal 15-valent Conjugate Vaccine) for the Prevention of Invasive Pneumococcal Disease in Adults 18 Years and Older Caused by 15 Serotypes

7/16/2021

Clinical Data Supporting Approval Demonstrated Non-Inferior Immune Responses for the Serotypes Shared with PCV13 (1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F and 23F)

VAXNEUVANCE Elicited Superior Immune Responses for Serotypes 3, 22F and 33F Compared to PCV13, Which Are Major Causes of Disease

KENILWORTH, N.J.--(BUSINESS WIRE)-- (NYSE: MRK), known as MSD outside the United States and Canada, today announced the U.S. Food and Drug Administration (FDA) approved VAXNEUVANCE™ (Pneumococcal 15-valent Conjugate Vaccine) (pronounced VAKS-noo-vans) for active immunization for the prevention of invasive disease caused by Streptococcus pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F in adults 18 years of age and older. The approval follows the FDA's Priority Review of Merck's application. VAXNEUVANCE is contraindicated for individuals with a history of severe allergic reaction (e.g., anaphylaxis) to any component of VAXNEUVANCE or to diphtheria toxoid; see additional Select Safety Information below.

The U.S. Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP) is expected to meet in October to discuss and make recommendations on the use of VAXNEUVANCE in adults.

VAXNEUVANCE was approved based on data from seven randomized, double-blind clinical studies assessing safety, tolerability, and immunogenicity in adults (see "Clinical Data Supporting FDA Approval" below for additional details).

Clinical data showed that immune responses elicited by VAXNEUVANCE were non-inferior to the currently available 13-valent pneumococcal conjugate vaccine (PCV13) for the 13 shared serotypes, as assessed by opsonophagocytic activity (OPA) Geometric Mean Titers (GMTs).

Additionally, immune responses for VAXNEUVANCE were superior to PCV13 for shared serotype 3 and for the two serotypes unique to VAXNEUVANCE, 22F and 33F. In the pivotal Phase 3 PNEU-AGE (V114-019) study, superiority for VAXNEUVANCE relative to PCV13 was based on statistically significantly greater OPA GMT ratios for serotypes 22F [GMT Ratio 32.52 (95% Confidence Interval (CI) 25.87, 40.88)] and 33F [GMT Ratio 7.19 (95% CI 6.13, 8.43)], as well as for the key secondary objective assessing serotype 3 [GMT Ratio 1.62 (95% CI 1.40, 1.87)]. Randomized controlled trials assessing the clinical efficacy of VAXNEUVANCE compared to PCV13 have not been conducted.

“Some adults, including older adults or those with certain chronic medical conditions or immunocompromising conditions, are at increased risk for pneumococcal disease and its serious, sometimes life-threatening complications,” said Dr. Jose Cardona, Indago Research and Health Center, coordinating investigator for the PNEU-AGE trial. “The FDA’s approval of VAXNEUVANCE is based on robust Phase 2 and 3 studies assessing immune responses in a broad range of adult populations and provides an important new option in protection from invasive pneumococcal disease.”

Pneumococcal disease is an infection caused by bacteria called Streptococcus pneumoniae, or pneumococcus. Different strains of this bacteria are called serotypes. Invasive pneumococcal disease (IPD) occurs when the bacteria infect parts of the body that are usually free from germs. Approximately 80 percent of all adult IPD burden is among adults 50 years of age and older. Serotypes 3, 22F and 33F contribute significantly to the burden of IPD, and serotype 3 is the leading cause of IPD in adults in the U.S.

“At Merck, we are committed to helping protect more people from invasive pneumococcal disease. That’s why we set out to develop a conjugate vaccine that includes pneumococcal serotypes that pose the greatest threat and elicits a strong immune response to each serotype covered,” said Dr. Roy Baynes, senior vice president and head of global clinical development, chief medical officer, Merck Research Laboratories. “The FDA approval of VAXNEUVANCE builds on Merck’s more than 40 years of experience in pneumococcal disease prevention with a new option that includes serotypes responsible for substantial disease burden in adults, like serotype 3, as well as serotypes 22F and 33F, which are associated with a high degree of invasiveness and antibiotic resistance.”

About VAXNEUVANCE

VAXNEUVANCE, Merck’s approved 15-valent pneumococcal conjugate vaccine, consists of purified capsular polysaccharides from S. pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F individually conjugated to CRM197 carrier protein. VAXNEUVANCE is indicated for active immunization for the prevention of invasive disease caused by the S. pneumoniae serotypes contained in the vaccine. VAXNEUVANCE previously

received Breakthrough Therapy designation from the FDA for the prevention of IPD in adults 18 years of age and older. In January 2021, it received Priority Review designation.

Merck is involved in litigation challenging the validity of several Pfizer Inc. patents that relate to pneumococcal vaccine technology in the United States and several foreign jurisdictions.

Select Safety Information for VAXNEUVANCE

Do not administer VAXNEUVANCE to individuals with a severe allergic reaction (e.g., anaphylaxis) to any component of VAXNEUVANCE or to diphtheria toxoid.

Some individuals with altered immunocompetence, including those receiving immunosuppressive therapy, may have a reduced immune response to VAXNEUVANCE.

The most commonly reported solicited adverse reactions in individuals 18 through 49 years of age were: injection site pain (75.8%), fatigue (34.3%), myalgia (28.8%), headache (26.5%), injection site swelling (21.7%), injection site erythema (15.1%) and arthralgia (12.7%).

The most commonly reported solicited adverse reactions in individuals 50 years of age and older were: injection site pain (66.8%), myalgia (26.9%), fatigue (21.5%), headache (18.9%), injection site swelling (15.4%), injection site erythema (10.9%) and arthralgia (7.7%).

Vaccination with VAXNEUVANCE may not protect all vaccine recipients.

Clinical Data Supporting FDA Approval

VAXNEUVANCE was approved based on data from seven randomized, double-blind clinical studies designed to evaluate its safety, tolerability, and immunogenicity in 7,438 individuals from a variety of adult populations and clinical circumstances, 5,630 of whom received VAXNEUVANCE. These included studies of:

- Healthy adults 50 years of age and older. The pivotal Phase 3 active comparator-controlled study assessed serotype-specific OPA responses for each of the 15 serotypes contained in VAXNEUVANCE at 30 days post-vaccination in pneumococcal vaccine naïve participants randomized to receive either VAXNEUVANCE (n=604) or PCV13 (n=601) (V114-019/PNEU-AGE [NCT03950622]). The study demonstrated that VAXNEUVANCE was non-inferior to PCV13 for the 13 shared serotypes and induces statistically significantly greater OPA GMTs compared to PCV13 for shared serotype 3 and for the two unique serotypes (22F, 33F).
- Adults 18-49 years of age with no history of pneumococcal vaccination, including individuals at increased risk of developing pneumococcal disease.

A Phase 3 descriptive study included individuals with stable underlying medical conditions (e.g., diabetes mellitus, renal disorders, chronic heart disease, chronic liver disease, chronic lung disease including asthma) and/or behavioral risk factors (e.g., smoking, increased alcohol use) that increased their risk of developing pneumococcal disease. Participants were randomized to receive VAXNEUVANCE (n=1,135) or PCV13 (n=380), followed by PNEUMOVAX® 23 (pneumococcal vaccine polyvalent) six months later (V114-017/PNEU-DAY [NCT03547167]). VAXNEUVANCE elicited immune responses to all 15 serotypes as assessed by OPA GMTs at 30 days following vaccination. Additionally, following vaccination with PNEUMOVAX 23, the OPA GMTs for the 15 serotypes in VAXNEUVANCE were numerically similar among subjects who had received VAXNEUVANCE or PCV13 for the first vaccination.

- Adults living with HIV, an immunocompromising condition. A Phase 3 descriptive study assessed the use of VAXNEUVANCE in pneumococcal vaccine naïve HIV-infected adults 18 years of age and older with CD4+ T cell count ≥50 cells per microliter and plasma HIV RNA value <50,000 copies/mL (V114-018/PNEU- WAY [NCT03480802]). Participants were randomized to receive VAXNEUVANCE (n=152) or PCV13 (n=150), followed by PNEUMOVAX 23 two months later. OPA GMTs were higher after administration of VAXNEUVANCE, compared to pre-vaccination, for the 15 serotypes contained in VAXNEUVANCE. After sequential administration with PNEUMOVAX 23, OPA GMTs were numerically similar between the two vaccination groups for all 15 serotypes contained in VAXNEUVANCE.
- Co-administration of VAXNEUVANCE with seasonal quadrivalent influenza vaccine (QIV). A Phase 3 trial evaluated adults 50 years of age and older who were randomized to receive VAXNEUVANCE concomitantly with a seasonal inactivated QIV (Fluarix Quadrivalent) (n=600) or non-concomitantly 30 days after QIV (n=600) (V114-021/PNEU-FLU [NCT03615482]). The non-inferiority criteria for the comparisons of GMTs were met for the 15 pneumococcal serotypes in VAXNEUVANCE and for the 4 influenza vaccine strains tested. VAXNEUVANCE can be administered concomitantly with seasonal inactivated influenza vaccine.
- Use of VAXNEUVANCE as part of a sequential regimen with PNEUMOVAX 23.

A Phase 3 active comparator-controlled descriptive study in pneumococcal vaccine-naïve adults 50 years of age or older assessed the use of VAXNEUVANCE (n=327) or PCV13 (n=325), followed by PNEUMOVAX 23 one year later (V114-016/PNEU-PATH [NCT03480763]). Following vaccination with PNEUMOVAX 23, OPA GMTs were numerically similar between the two vaccination groups for the 15 serotypes in VAXNEUVANCE.

About Merck

For 130 years, Merck, known as MSD outside of the United States and Canada, has been inventing for life, bringing forward medicines and vaccines for many of the world's most challenging diseases in pursuit of our mission to save and improve lives. We demonstrate our commitment to patients and population health by increasing access to health care through far-reaching policies, programs and partnerships. Today, Merck continues to be at the forefront of research to

prevent and treat diseases that threaten people and animals – including cancer, infectious diseases such as HIV and Ebola, and emerging animal diseases – as we aspire to be the premier research-intensive biopharmaceutical company in the world. For more information, visit **www.merck.com** and connect with us on **Twitter**, **Facebook**, **Instagram**, **YouTube** and **LinkedIn**.

Forward-Looking Statement of Merck & Co., Inc., Kenilworth, N.J., USA

This news release of Merck & Co., Inc., Kenilworth, N.J., USA (the "company") includes "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of the company's management and are subject to significant risks and uncertainties. There can be no guarantees with respect to pipeline products that the products will receive the necessary regulatory approvals or that they will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Risks and uncertainties include but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of the global outbreak of novel coronavirus disease (COVID-19); the impact of pharmaceutical industry regulation and health care legislation in the United States and internationally; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; the company's ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of the company's patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

The company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the company's 2020 Annual Report on Form 10-K and the company's other filings with the Securities and Exchange Commission (SEC) available at the SEC's Internet site (**www.sec.gov**).

Please see Prescribing Information for VAXNEUVANCE (pneumococcal 15-valent conjugate vaccine) at
https://www.merck.com/product/usa/pi_circulars/v/vaxneuvance/vaxneuvance_pi.pdf.

and Patient Information at
https://www.merck.com/product/usa/pi_circulars/v/vaxneuvance/vaxneuvance_ppi.pdf.

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Media Contacts:

Melissa Moody
(215) 407-3536
Steve Wanczyk
(267) 305-5563

Investor Contacts:

Peter Dannenbaum
(908) 740-1037
Raychel Kruper
(908) 740-2107

Source: Merck & Co., Inc.