For a future free from Meningitis

MenFive

Meningococcal (A, C, Y, W, X) Polysaccharide Conjugate Vaccine

World's First Pentavalent Meningococcal Vaccine with Serogroup X

SERUM INSTITUTE OF INDIA

CYRUS POONAWALLA GROUP

Disease

- *Neisseria meningitidis*, classified into twelve serogroups out of which six serogroups (A, B, C, W, X and Y) can cause invasive disease - typically meningitis and septicaemia- that often occurs in large outbreaks. Despite adequate therapy, there are approximately 10% deaths and residual neurologic impairment in up to 15% of survivors.[1]
- Meningitis can strike everyone and at all ages.[2]
- Meningitis epidemics can happen fast with serious health, economic and social consequences.[2]
- An estimated 2.5 million new cases globally and 236,000 deaths from meningitis in 2019.[3]
- Serogroup X has additionally emerged having epidemic potential in the meningitis belt and elsewhere.[4]
- Although quadrivalent meningococcal A, C, Y, and W conjugate vaccines have been licensed, their uptake in the meningitis belt has remained challenging, mainly due to cost considerations, and there is no licensed vaccine for serogroup X.[5]

Each dose (0.5 ml) contains:

5 μg of each Meningococcal A, C, Y, W, and X polysaccharide individually conjugated to a carrier protein. The serogroup A and X polysaccharides are conjugated to purified tetanus toxoid and the serogroup C, W, and Y polysaccharides are conjugated to recombinant CRM197 (cross-reactive material 197, a nontoxic mutant of diphtheria toxin) protein.

Dose: 0.5 ml by intramuscular injection

Presentation: MenFive is supplied as lyophilized powder in a single-dose or 5-dose vial along with diluent (i.e. 0.9% sodium chloride) in below listed presentations.
1 dose - 0.5 mL per vial
5 dose - 2.5 mL per vial

Clinical Trials

Study No. / Phase / Location	Study Population	Schedule of vaccination / Control	No. of Subjects		
			Adjuvanted MenFive	Non-adjuvanted MenFive	MenACWY-D
ACYWX-01 / Phase 1 NCT 02810340 Completed / United States https://pubmed.ncbi.nlm.nih.gov/30120069/	Adults (18-45 years inclusive)	1 dose on Day 0 / MenACWY-D	20	20	20

- This first-in-human study showed that two different formulations of the candidate pentavalent meningococcal conjugate vaccine MenFive were well tolerated and no substantial local or systemic reactogenicity or other safety signals were observed.
- At 4 weeks following vaccination, all three study vaccines (adjuvanted MenFive, non-adjuvanted MenFive, and MenACWY-D control) elicited antibody responses to N meningitidis serogroups A, C, Y, and W. As designed, the adjuvanted and non-adjuvanted MenFive vaccines were also able to elicit robust antibody responses to serogroup X.

Study No. / Phase / Location	Study Population	Schedule of vaccination / Control	No. of Subjects		
			Adjuvanted MenFive	Non-adjuvanted MenFive	MenACWY-D
ACYWX-02 / Phase 2 NCT 03295318 completed / Mali https://www.nejm.org/doi/full/10.1056/NEJMoa2013615	Children (12-16 months inclusive)	2 doses on Day 0 and Day 84/ MenACWY-D	149	150	76

- The local reactogenicity profiles of the two MenFive formulations were similar to that of MenACWY-D, and no safety concerns were identified.
- This trial showed that MenFive also does not need an adjuvant, because both formulations elicited similar immune responses to all serogroups at all time points.
- MenACWY-D is recommended at a two-dose schedule in children 9 through 23 months of age, and the findings of this trial support this schedule. In contrast, **a single dose of MenFive elicited immune responses that were similar to or higher than those observed with the two-dose schedule of MenACWY-D, which indicates that a single dose of MenFive may protect children who receive the vaccine at 12 through 16 months of age.**

Study No. / Phase / Location	Study Population	Schedule of vaccination / Control	No. of Subjects MenFive	No. of Subjects MenACWY-D
ACYWX-04 / Phase 2/3 NCT 04358731 / India Data on file	Adults (18-85 years inclusive)	1 dose on Day 0/ MenACWY-D	1233	407

- MenFive was highly immunogenic, safe and demonstrated lot-to-lot consistency.
- Non-inferiority of MenFive against MenACWY-D was met in terms of seroresponse rates and GMT ratios for all five serogroups.
- MenFive induced robust immune responses against serogroup X.

Study No. / Phase / Location	Study Population	Schedule of vaccination / Control	No. of Subjects MenFive	No. of Subjects MenACWY-D
ACYWX-03 / Phase 3 NCT 03964012 completed / Mali and The Gambia https://www.nejm.org/doi/full/10.1056/NEJMoa2214924	Adults (18-29 years inclusive)	1 dose on Day 0/ MenACWY-D	400	200
	Adolescents (11-17 years inclusive)	1 dose on Day 0/ MenACWY-D	400	200
	Children (2-10 years inclusive)	1 dose on Day 0/ MenACWY-D	400	200

- This phase 3 trial showed the immunologic noninferiority of the MenFive vaccine as compared with the licensed, WHO-prequalified, quadrivalent meningococcal conjugate vaccine MenACWY-D.
- For all four serogroups in common with the MenACWY-D vaccine, the MenFive vaccine elicited immune responses that were noninferior to those elicited by the MenACWY-D vaccine. MenFive also elicited immune responses to serogroup X. No safety concerns were evident.
- The MenFive vaccine had a safety profile similar to that of the licensed vaccine.

Study No. / Phase / Location	Study Population	Schedule of vaccination / Control	No. of Subjects MenFive	No. of Subjects MenACWY-D
EUCC-DMID-20-0024 / Phase 3 NCT 05093829 -Ongoing / Mali Data on file	Children (9-15 months)	1 dose at 9 months or 15 months / MenACWY-TT	800	400

- This study demonstrated that MenFive is safe and immunologically non-inferior to MenACWY-TT for all 5 serogroups in infants aged 9 to 15 months.
- The study also supports concomitant administration of MenFive with routine EPI vaccines, measles, rubella and yellow fever.

Considering the meningococcal epidemiology in the meningitis belt and the requirement of a meningococcal vaccination for traveler's to endemic countries and Hajj/Umrah pilgrims to Saudi Arabia, a pentavalent meningococcal vaccine, an important advancement in the fight against meningococcal disease.[5]

Ref
1: https://www.who.int/news-room/fact-sheets/detail/meningococcal-meningitis
2: https://www.who.int/news-room/events/detail/2021/04/24/default-calendar/world-meningitis-day
3: Global Health Data Exchange. Global Burden of Disease Survey 2019 (GBD 2019) Data Resources. (https://ghdx.healthdata.org/gbd-2019)
4: Alderson MR, LaForce FM, Sobanjo-Ter Meulen A, Hwang A, Preziosi MP, Klugman KP. Eliminating Meningococcal Epidemics From the African Meningitis Belt: The Case for Advanced Prevention and Control Using Next-Generation Meningococcal Conjugate Vaccines. J Infect Dis 2019;220(220 Suppl 4):S274-s278. (In eng). DOI: 10.1093/infdis/jiz297
5: www.thelancet.com/infection Published online August 14, 2018 http://dx.doi.org/10.1016/S1473-3099(18)30400-6

Meningococcal (A, C, Y, W, X) Polysaccharide Conjugate Vaccine (Freeze-Dried)

MenFive

Name of the Medicinal Product

MenFive
Meningococcal (A, C, Y, W, X) Polysaccharide Conjugate Vaccine (Freeze-Dried)

PHARMACEUTICAL FORM

MenFive is a freeze-dried formulated vaccine available in two presentations viz. 5-dose vial and single-dose vial. The freeze-dried vaccine is to be reconstituted with provided diluent i.e. 0.9% sodium chloride prior to the administration.

Mechanism of action: MenFive induces the production of anti-capsular meningococcal antibodies that protect against meningococcal disease (*Neisseria meningitidis* serogroups A, C, Y, W, and X) via complement mediated bactericidal activity.

Therapeutic indications: MenFive is indicated for active immunization of individuals aged 9 months to 85 years against invasive meningococcal disease caused by *Neisseria meningitidis* serogroups A, C, Y, W, and X.

POSOLOGY AND METHOD OF ADMINISTRATION

Posology: MenFive vaccination course consists of a single dose of 0.5 mL.

Method of administration: MenFive is for intramuscular (IM) injection only, preferably in the deltoid muscle. In children below 5 years of age, the anterolateral aspect of the thigh may be used as an alternate site if injection in the deltoid muscle is not feasible.

Contraindications: Hypersensitivity to the active substance or to any of the excipients.

Special warnings and special precautions for use

- Risk of bleeding with intramuscular administration: MenFive should be given with caution to individuals with thrombocytopenia, any coagulation disorder or to persons on anticoagulation therapy.
- Immunocompromised individuals: No safety or efficacy data are available.
- Syncope: Syncope (fainting) can occur following, or even before, any vaccination especially in adolescents as a psychogenic response to the needle injection.
- Protection against meningococcal disease: MenFive will not protect from meningitis caused by any other *Neisseria meningitidis* serogroups other than A, C, Y, W and X, other bacteria, viruses, fungi, mycobacteria etc.

Adverse reaction: Common adverse reactions reported were headache, injection site pain/tenderness, injection site swelling/induration, pyrexia, fatigue, diarrhea, anorexia, myalgia, and arthralgia.

For more information, please see full prescribing information.

SERUM INSTITUTE OF INDIA
CYRUS POONAWALLA GROUP
212/2 Hadapsar, Pune 411 028, India. Tel.: +91 20 26993900/04 Fax: +91 20 26993924.
website: www.seruminstitute.com E-mail: serumexports@seruminstitute.com

MenFive_LBL_v2_3, 08_03_2024