



***Nimenrix™*** elicited a bactericidal antibody response against the four groups, with a response against group C that was comparable to the one elicited by the licensed MenC-CRM vaccine in term of rSBA titres ≥8 (Table 1).

**Table 1: Bactericidal antibody responses (rSBA) in toddlers aged 12-23 months**

In the study MenACWY-TT-039, the serum bactericidal activity was also measured using human serum as the source of complement (hSBA) as a secondary endpoint (Table 2).

**Table 2: Bactericidal antibody responses (hSBA) in toddlers aged 12-23 months**

**Immunogenicity in children aged 2-10 years**

In two comparative studies conducted in subjects aged 2-10 years, one group of subjects received a dose of ***Nimenrix™*** and a second group a dose of either a licensed MenC-CRM vaccine (study MenACWY-TT-081) or the licensed GlaxoSmithKline Biologicals' plain polysaccharide meningococcal group A, C, W-135, Y (ACWY-PS) vaccine (study MenACWY-TT-038 ) as comparator.

In the MenACWY-TT-038 study, ***Nimenrix™*** was demonstrated to be non-inferior to the licensed ACWY-PS vaccine in terms of vaccine response to the four groups (A, C, W-135 and Y) (Table 3).

**Table 3: Bactericidal antibody responses (rSBA) to *Nimenrix™* and the ACWY-PS vaccine in children aged 2-10 years 1 month after vaccination (study MenACWY-TT-038)**

In the MenACWY-TT-081 study, ***Nimenrix™*** (N=268) was demonstrated to be non-inferior to another licensed MenC-CRM vaccine (N=92) in terms of vaccine response to the Men C group (94.8% and 95.7% respectively), GMTs were lower for the ***Nimenrix™*** group (2794.8) versus the MenC-CRM vaccine (5291.6).

**Immunogenicity in adolescents aged 11-17 years and adults aged ≥ 18 years**

In two clinical studies, conducted in adolescents 11-17 years of age (study MenACWY-TT-036) and in adults 18-55 years of age (study MenACWY-TT-035), either one dose of ***Nimenrix™*** or one dose of the ACWY-PS vaccine were administered.

In both adolescents and adults, ***Nimenrix™*** was demonstrated to be immunologically non-inferior to the ACWY-PS vaccine in terms of vaccine response. The response to the four meningococcal groups elicited by ***Nimenrix™*** was either similar or higher than the one elicited by the ACWY-PS vaccine (Table 4).

**Table 4: Bactericidal antibody responses (rSBA) to *Nimenrix™* and the ACWY-PS vaccine in adolescents aged 11-17 years and adults aged ≥ 18 years 1 month after vaccination**

**Persistence of immune response**

The persistence of the immune response elicited by ***Nimenrix™*** was evaluated 12 to 42 months after vaccination in subjects aged 12 months to 55 years.

In all age groups, the rSBA GMTs observed at the persistence time-point were higher than prior to vaccination for the four groups.

For all groups (A, C, W-135, Y), the persistence of the antibodies elicited by ***Nimenrix™*** was similar or higher than those induced by the licensed meningococcal vaccines (i.e. MenC-CRM vaccine in subjects aged 12-23 months and ACWY-PS vaccine in subjects older than 2 years of age).

In contrast to the observed rSBA-MenA persistence, across age groups, there was a more rapid waning (as measured at 12 months post-dose onwards) of serum bactericidal antibody titres against MenA than against other groups (C, W-135, Y) when using human complement in the assay (Tables 5, 6 and 8). This rapid waning of hSBA-MenA antibodies has also been observed with other meningococcal vaccines. The clinical relevance of the rapid waning of hSBA-MenA antibody titres is unknown (see section “*Warnings and Precautions*”).

**Persistence of immune response in toddlers aged 12-23 months**

In study MenACWY-TT-048, the persistence of the immune response was evaluated by rSBA and hSBA 2 years after vaccination in toddlers primed in study MenACWY-TT-039 (Table 5).

**Table 5: 2 year persistence data in toddlers aged 12-23 months at vaccination**

**Persistence of immune response in children aged 6-10 years**

In study MenACWY-TT-028, the persistence of the immune response was evaluated by hSBA 1 year after vaccination in children 6-10 years of age primed in study MenACWY-TT-027 (Table 6).

**Table 6: 1 month post-vaccination and 1 year persistence data in children 6-10 years of age**

**Persistence of immune response in adolescents aged 11-17 years**

In study MenACWY-TT-043, the persistence of the immune response was evaluated 2 years after vaccination in adolescents primed in study MenACWY-TT-036 (Table 7). See Table 4 for primary results in this study.

**Table 7: 2 year persistence data (rSBA) in adolescents aged 11-17 years at vaccination**

**Persistence of immune response in adolescents and adults aged 11-25 years evaluated by hSBA**  
In study MenACWY-TT-059, the persistence of the immune response was evaluated by hSBA 1 year after vaccination in adolescents and adults 11-25 years of age primed in study MenACWY-TT-052.

For all groups (A, C, W-135, Y), the persistence of the antibodies elicited by ***Nimenrix™*** was similar or higher than those induced by the licensed quadrivalent meningococcal diphtheria toxoid (DT) conjugate vaccine (ACWY-DT) (Table 8).

**Table 8: 1 month post-vaccination and 1 year persistence data in adolescents and adults 11-25 years of age evaluated by hSBA**

**Immune memory**

In the study MenACWY-TT-014, the induction of immune memory was assessed one month after the administration of a fifth of the dose of ACWY-PS vaccine (10 µg of each polysaccharide) to children in the third year of life previously primed in the study MenACWY-TT-013 with ***Nimenrix™*** or a licensed MenC-CRM vaccine at the age of 12 to 14 months.

One month after the challenge dose, the GMTs elicited by the subjects primed with ***Nimenrix™*** increased by 6.5 to 8 fold for groups A, C, W-135 and Y and indicate that ***Nimenrix™*** induces immune memory to groups A, W-135 and Y. The post-challenge rSBA-MenC GMT was similar in both study groups, indicating that ***Nimenrix™*** induces an analogous immune memory to group C as the licensed MenC-CRM vaccine (Table 9).

**Table 9: Immune response (rSBA) 1 month after a challenge vaccination in subjects primed with *Nimenrix™* or a MenC-CRM vaccine at the age of 12 to 14 months**

**Immunogenicity in subjects previously vaccinated with a plain polysaccharide meningococcal vaccine**

In study MenACWY-TT-021 conducted in subjects aged 4.5-34 years, the immunogenicity of ***Nimenrix™*** administered between 30 and 42 months after vaccination with the ACWY-PS vaccine was compared to the immunogenicity of ***Nimenrix™*** administered to age-matched subjects who had not been vaccinated with any meningococcal vaccine in the preceding 10 years. The rSBA GMTs were significantly lower in the subjects who had received a dose of ACWY-PS vaccine 30-42 months prior to ***Nimenrix™*** (Table 10). Clinical relevance of this observation is unknown since all subjects achieved rSBA titres ≥ 8 for each group (A, C, W-135, Y).

**Table 10: Immune response (rSBA) 1 month after *Nimenrix™* vaccination in subjects according to their meningococcal vaccine history**

**Pharmacokinetics**

Not relevant for vaccines.

**Clinical Studies**

See section “*Pharmacodynamics*”.

**Pre-clinical Safety Data**

Non-clinical data reveal no special hazard for humans based on local tolerance, acute toxicity, repeated dose toxicity, developmental/reproductive toxicity and fertility studies.

**PHARMACEUTICAL PARTICULARS**

**List of Excipients**

Powder: sucrose, trometamol.

Solvent: sodium chloride, water for injections.

**Incompatibilities**

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

**Shelf Life**

The expiry date is indicated on the label and packaging.

**Special Precautions for Storage**

- Store in a refrigerator (2°C – 8°C)
- The solvent may also be stored at ambient temperature (25°C)
- Do not freeze
- Protect from light

**Nature and Contents of Container**

- Powder in a vial containing 1 dose (type I glass) with a stopper (butyl rubber) and 0.5 ml of solvent for 1 dose in a pre-filled syringe with a stopper (butyl rubber).  
Pack sizes of 1 and 10 with or without needles.
- Powder in a vial containing 1 dose (type I glass) with a stopper (butyl rubber) and 0.5 ml of solvent for 1 dose in an ampoule (type I glass).  
Pack sizes of 1, 10 and 100  
The powder is white. The solvent is clear and colorless.

**Instructions for Use/Handling (see at the end of the leaflet)**