

Supplemental Digital Content 1. Trial design; Characterization of test strains for serogroups A, B, C, W and Y; Lot numbers for vaccines and placebo doses administered in the study

Figure S1_1. Trial design

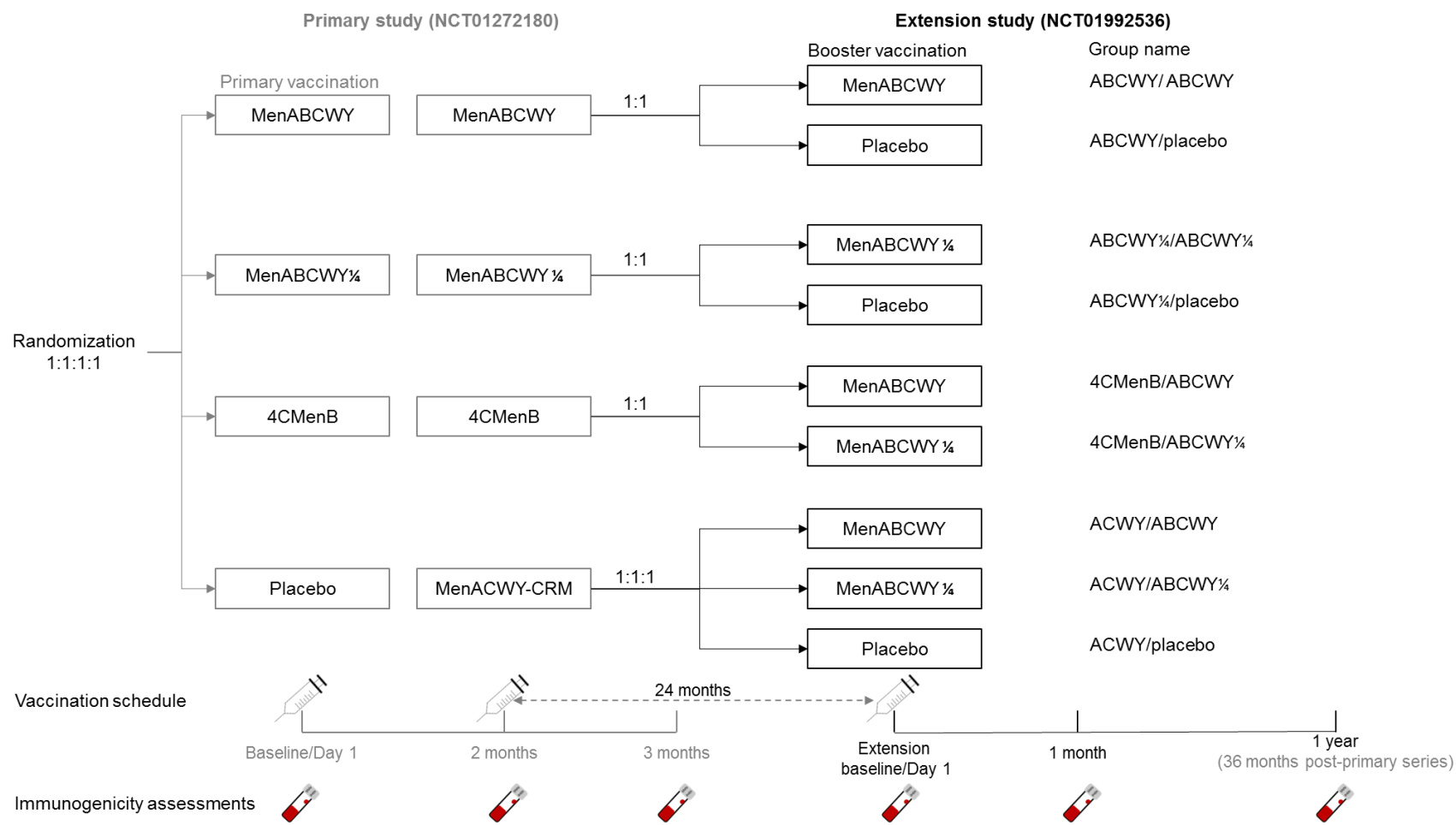


Table S1_1. Characterization of test strains for serogroups A, B, C, W and Y

Strain	Target antigen	Country, year of isolation	Phenotype	CC (ST)	4CMenB antigens molecular typing			PorA match	MATS relative potency		
					fHbp	NHBA	NadA		fHbp	NHBA	NadA
Serogroup B strains											
M14459	fHbp	United States, 2005	B:NT:P1.22,9	NA (2048)	1.110	19	-	No	0.269	0.224	<LLOQ
M07-0241084*	NHBA	United Kingdom, 2007	B:4:P1.19,15	41/41 (1097)	2.302	31	-	No	<LLOQ	0.292	<LLOQ
96217	NadA	Canada, 1996	B:2b :P1.5,10	8 (153)	2.16	20	+	No	<LLOQ	0.231	0.092
NZ98/254	PorA	New Zealand, 1998	B:4 :P1.7-2,4	41/44 (42)	1.14	2	-	Yes	0.037	1.099	<LLOQ
Serogroups A, C, W, Y											
F8238	A	Kenya, 1989	A:4,21:P1.20,9	5 (5)	1.5	27	+	No	0.047	0.15	0.24
C11	C	Cuba, 1965	C:16:P1.7-1,1	NA (345)	2.22	15	+	No	<LLOQ	0.41	0.028
240070	W	United Kingdom, 2001	W:NT:P1.18-1,3	22 (184)	2.16	20	-	No	<LLOQ	0.66	<LLOQ
860800	Y	Netherlands, 1986	Y:NT:P1.5-1, 10-4	167 (29)	2.23	9	-	No	<LLOQ	0.068	<LLOQ

CC, clonal complex; NA, not assigned; ST, sequence type; fHbp, factor H binding protein; NadA, *Neisseria* adhesin A; NHBA, *Neisseria* heparin binding antigen; MATS, Meningococcal antigen typing system; LLOQ, lower limit of quantitation.

Note: The primary target antigen of bactericidal killing, CC and ST are provided for each test strain. The PorA serosubtype, fHbp subvariant, presence of the *nadA* gene and NHBA peptide are given for each strain. The fHbp nomenclature is as used in the *Neisseria* PubMLST database (<http://pubmlst.org/neisseria/>). 4CMenB antigen presence or anticipated cross-reactivity is presented in italics.

MATS relative potency values are expressed relative to the reference strain for each antigen. The positive bactericidal threshold is as follows: fHBP = 0.021, NHBA = 0.29 and NadA = 0.009. Each of the 4 serogroup B test strains are representative of circulating strains, target antigen expression and were tested using human serum bactericidal inhibition assays to show specificity to the respective target antigen. Although the positive bactericidal threshold for the strain M07-0241084 is near the MATS relative potency for NHBA, testing in the bactericidal NHBA inhibition assay shows it to be specific for NHBA antibodies (see the Methods section). Numbers in bold for the ACWY serogroups indicate a relative potency above

the positive bactericidal threshold (Donnelly J, Medini D, Boccadifuoco G, et al. Qualitative and quantitative assessment of meningococcal antigens to evaluate the potential strain coverage of protein-based vaccines. *Proc Natl Acad Sci U S A*. 2010;107:19490-19495). The clinical significance of the MATS relative potency for the non-B strains is unknown.

Table S1_2. Lot numbers for vaccines and placebo doses administered in the study

Vaccine/placebo	Country	Lot number
MenABCWY	United States	113001AG/RMBX01007
	Poland	113001AH/RMBX01008
MenABCWY $\frac{1}{4}$	United States	E38P33N1/RMBX01009
	Poland	E38P33N1A/RMBX01010
Placebo	United States	IC12361035
	Poland	ID12361035