

Vaccine-Derived Polioviruses Not Detected by Global Surveillance Screening Assay

Technical Appendix

Technical Appendix Table. Nucleotide substitutions in 5' UTR and capsid region of type 2 and type 3 VDPV strains*

Region	Type 2 VDPV			Type 3 VDPV	
	Nucleotide no.	R93150	R93152	Nucleotide no.	R46064
5'UTR	481	A→G	A→G	472	T→C
	681		T→C		
	707	A→T			
	730		T→C		
VP4	831	T→C		844	A→G
	927		C→A		
VP2	1059	C→T	C→T	1066 1567	T→C T→C
	1164	T→G			
	1168		C→T		
	1469	A→G			
	1507	C→T			
	1704	G→A			
VP3	1857		C→T	2034 2278 2401	T→C T→C T→C
	1943		G→T		
	2025		G→A		
	2046	C→T			
	2055	A→G	A→G		
	2420	A→G	A→G		
	2475		G→A		
	VP1	2490	T→C			T→C	2546 2551 2636 2760 2766 2917 2967 2972 2973 3067 3226 3316	A→G A→G G→A C→M C→T T→C C→T A→G A→G G→A T→C A→G
2525		A→G			
2739		C→T			
2766			T→C		
2829		T→C			
2908			A→G		
2958		T→C			
2992		A→G	A→G		
3057			A→G		
3381			T→G		

*Nucleotide substitutions are shown as Sabin→Isolate; Nucleotide substitutions causing amino acid changes are shown in bold type; The complete genome sequences of R93150, R93152, and R46064 were submitted to GenBank (accession nos. KR259356–KR259358). UTR, untranslated region; VDPV, vaccine-derived poliovirus.

	VP2			VP3		VP1		
	NAg3b	NAg2	NAg2	NAg3a	NAg3b	NAg1	NAg2	NAg3a
	71	164	268	54	75	88	222	287
Sabin 2	WRK	TNATNPARNPRT	PRTQ	PLNLTSQRVELSD	TAHSDT	AIIEVDNDAPTKRASRLFS	STEGD	KDGLT
R93150	...	.....S....	....	.....	.....	.....	.....	.....
R93152	. C.	.....	....	.....I.....	.....	.....	.....	.....
Sabin 3	WGK	NAVTSFKREPKE	PKFQ	PLNLESTKVTLSD	SADLSQ	IEVDNEQPTTRAQKLFAMW	QIGDS	NNLDP
R46064	...	.....	....	.....	.....	.....Q.I.....	.....	.....

Technical Appendix Figure 1. Amino acid changes at neutralizing antigenic sites (NAg) of VDPVs. The number indicates the first amino acid position within the antigenic site.

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Sabin2      AAACTGGAATTTTTACATATTCGAGATTTGACATGGAGTTCACTTTTTGTGGTCACCTCA
R-93150    AAACTGGAATTTTTACATATTCGAGATTTGACATGGAGTTCACTTTTTGTGGTCACCTCA
R-93152    AAACTGGAATTTTTACATATTCGAGATTTGACATGGAGTTCACTTTTTGTGGTCACCTCA
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Sabin2      AACTACATTGATGCAAATAACGGACATGCATTGAACCAAGTTTATCAGATAATGTATATA
R-93150    AACTACATTGATGCAAATAACGGACATGCATTGAACCAAGTTTATCAGATAATGTACATA
R-93152    AACTACGTTGATGCAAATAACGGACATGCATTGAACCAAGTTTATCAGATAATGTATATA
*****

Sabin2      CCACCCGGAGCACCTATCCCTGGTAAATGGAAATGACTATACGTGGCAGACGTCTCTAAC
R-93150    CCACCCGGAGCACCTATCCCTGGTAAATGGGATGACTATACGTGGCAGACGTCTCTAAC
R-93152    CCACCCGGAGCACCTATCCCTGGTAAATGGGATGACTATACGTGGCAGACGTCTCTAAC
*****

Sabin3      GTTCGTGTTGTCAATGATCACAACCCCACTAAAGTAACCTCCAAAGTCCGCATTTTACATG
R-46064    GTTCGTGTTGTCAATGATCACAACCCCACTAAAGTAACCTCCAAAGTCCGCATTTTACATG
*****

Sabin3      AAACCCAAACACGTACGTGTCTGGTGCCCTAGACCGCCGCGCGCGGTACCTTATTATGGA
R-46064    AAACCCAAACACGTACGTGTCTGGTGCCCTAGACCGCCGCGCGCGGTACCTTATTATGGA
*****

Sabin3      CCAGGGGTGGACTATTAGGAACAACTTGGACCCCTTATCTGAGAAAGGTTTGACCACATAT
R-46064    CCAGGGGTGGACTATTAGGAACAACTTGGACCCCTTATCTGAGAAAGGTTTGACCACATAT
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Technical Appendix Figure 2. Nucleotide sequence alignment of VDPV2 and VDPV3 with corresponding Sabin vaccine virus sequences. Primer and probe regions are shown in bold type.