

Supplementary Table 3. Amino acid residues and substitutions in the VP2 gene of the recent CPV strains (2023), repository isolates (2009 - 2019) and the vaccine strain

							Aminoacid resides and sustitution in the partial CPV VP2 gene													Strain*							
	NCBI GenBank Accession ID	Sample ID	Place	State	Country	Year of Collection	267	286	297	300	305	324	368	370	373	375	386	426*	440								
CPV Vaccine strain							OR296289	Indian Vaccine strain						Phe	Gly	Ser	Ala	Asp	Tyr	Glu	Gln	Asp	Asn	Lys	Asn	Thr	CPV-2
Repository isolates (2009 - 2019)	OR296278	3566	Puducherry	puducherry	India	2009	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296281	CO2	Coimbatore	Tamil Nadu	India	2011	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296280	S4	Salem	Tamil Nadu	India	2012	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296286	QLN11	Chennai	Tamil Nadu	India	2019	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296279	MY5	Mysore	Karnataka	India	2012	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296283	TRI6	Thrissur	Kerala	India	2012	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296285	KLD3	Thrissur	Kerala	India	2014	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296282	TH10	Trivandrum	Kerala	India	2012	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296287	WV14	Goa	Goa	India	2019	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR296284	UP6	Mathura	Uttar Pradesh	India	2014	.	.	Ala	Gly	Tyr	.	.	.	.	Asp	Gln	Asn	.	CPV-2a							
	OR296288	SD2	Gangtok	Sikkim	India	2014	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
Recent CPV strains (2023)	OR339746	3027	Puducherry	Puducherry	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339747	04A	Krishna	Andhra Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	Lys	Arg	.	Asp	Gln	Asn	.	CPV-2a							
	OR339748	01B	Bangalore	Karnataka	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	Lys	Arg	.	Asp	Gln	Asn	.	CPV-2a							
	OR339757	2G	Goa	Goa	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339758	3G	Goa	Goa	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339749	M09	Mumbai	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	Lys	Arg	Asn	Asp	Gln	Asn	.	CPV-2a							
	OR339750	MA06	Sangli	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	Lys	.	.	Asp	Gln	Asn	.	CPV-2a							
	OR339754	HY03	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339755	HY04	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339751	HY05	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	Asn	Asp	Gln	Asn	.	CPV-2a							
	OR339752	HY07	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Asn	.	CPV-2a							
	OR339753	J02	Delhi	Delhi	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	Lys	Arg	Asn	Asp	Gln	Asn	.	CPV-2a							
	OR339756	UP06	Ayodhya	Uttar Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	Ala	CPV-2a							
	OR339759	Chhat02	Durg	Chhattisgarh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asn	.	CPV-2a							
	OR339745	HY06	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Asp	Ala	CPV-2b							
	OR339706	3153	Puducherry	Puducherry	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c							
	OR296265	3157	Puducherry	Puducherry	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c							
	OR339710	124259	Chennai	Tamil Nadu	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c							

OR296263	124644	Chennai	Tamil Nadu	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339707	01A	Krishna	Andhra Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339704	HYD02	Hyderabad	Telangana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339705	HYD04	Hyderabad	Telangana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296264	HYD05	Hyderabad	Telangana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339708	04B	Bangalore	Karnataka	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339709	06K	Bangalore	Karnataka	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296275	01G	Goa	Goa	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296261	M01	Mumbai	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339716	M04	Mumbai	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339717	MA04	Sangli	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Glu	.	CPV-2c
OR339718	MA09	Sangli	Maharashtra	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339722	01b	Jaipur	Rajasthan	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339723	02R	Jaipur	Rajasthan	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339724	01R	Jaipur	Rajasthan	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296276	03R	Jaipur	Rajasthan	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296271	HY01	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339721	HY08	Faridabad	Haryana	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339719	676666	Delhi	Delhi	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Glu	.	CPV-2c
OR296260	J01	Delhi	Delhi	India	2023	Tyr	Ser	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339720	1369	Delhi	Delhi	India	2023	Tyr	.	Ala	Gly	Tyr	.	Lys	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296272	UP02	Ayodhya	Uttar Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296273	WB02	Kolkata	West Bengal	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339738	WB03	Kolkata	West Bengal	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339739	WB04	Kolkata	West Bengal	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339740	W02	Barrackpore	West Bengal	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339741	W03	Barrackpore	West Bengal	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339742	JH01	Ranchi	Jharkhand	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296270	JH05	Ranchi	Jharkhand	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296268	B03	Patna	Bihar	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339743	B04	Patna	Bihar	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339728	AS01	Guwahati	Assam	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296274	AS03	Guwahati	Assam	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339729	AS05	Guwahati	Assam	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c

OR339730	AS09	Guwahati	Assam	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339731	MZ01	Aizwal	Mizoram	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296277	MZ04	Aizwal	Mizoram	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339732	MZ07	Aizwal	Mizoram	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339733	MZ08	Aizwal	Mizoram	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339734	N01	Pfutsero	Nagaland	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296262	N02	Pfutsero	Nagaland	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339735	N04	Pfutsero	Nagaland	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339736	Ma02	Imphal	Manipur	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Glu	.	CPV-2c
OR339737	Ma05	Imphal	Manipur	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	Ala	CPV-2c
OR339744	Chhat01	Durg	Chhattisgarh	India	2023	Tyr	.	Ala	Gly	Tyr	.	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296269	Chhat03	Durg	Chhattisgarh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	.	.	Asp	Gln	Glu	.	CPV-2c
OR339711	11910	Bhopal	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339712	22247	Bhopal	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296267	15024	Bhopal	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339727	OREO	Bhopal	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR296266	MJ02	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339713	MJ03	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339714	MJ05	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339725	MJ06	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339715	MJ07	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c
OR339726	MJ09	Jabalpur	Madhya Pradesh	India	2023	Tyr	.	Ala	Gly	Tyr	Ile	.	Arg	.	Asp	Gln	Glu	.	CPV-2c