

Electronic Supplementary Material

Molecular-Genetic Characterization of Human Rotavirus A Strains Circulating in Moscow, Russia (2009–2014)

Victoria Kiseleva¹, Evgeny Faizuloev^{1,2}✉, Elena Meskina³, Anna Marova¹, Alexey Oksanich¹, Tatiana Samartseva¹, Georgy Bakhtoyarov¹, Natalia Bochkareva³, Nikolay Filatov^{1,4}, Andrey Linok¹, Yulia Ammour¹, Vitaly Zverev^{1,4}

1. Department of Virology, I. Mechnikov Research Institute of Vaccines and Sera, Moscow 105064, Russia

2. Faculty of Preventive Medicine and Health Organization, Russian Medical Academy of Continuous Professional Education, Moscow 125993, Russia

3. M. Vladimirsky Moscow Regional Research Clinical Institute (MONIKI), Moscow 129110, Russia

4. Faculty of Preventive Medicine, I.M. Sechenov First Moscow State Medical University, Moscow 119991, Russia

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Supplementary Table S1. Primers and probes for multiplex real-time RT-PCR-detection of AdV, EnV, RVA, NoV, AstV, SaV, ReV, RVC, genotyping of rotaviruses and sequencing of VP7 and VP4 genes fragments.

Primer mix name	Virus	Primer or TaqMan probe name	Sequence, 5'-3'	Target	Amplicon size, bp	Reference
AGE-1	AdV	AdVf	CTCCAGCAACTTCATGTCYATGGG	Hexon	160	This work
		AdVr1	CACTCTGACCACGTCGAARACTTC			
		AdVr2	CGCACRACGTCGAAAACCTTC			
		AdVp	FAM-AGGGTGGGCTCRTCCATGGGRTCCA-BHQ1			
	EnV	EnVf	CTCCGGCCCCTGAAT	5'-NTR	202	
		EnVr	RATTGTCACCATAAGCAGCC			
		EnVp	R6G-GCGGAACCGACTACTTTGGGTGTCCG-BHQ1			
	IPC	IPCf	AAGCTGTTCAGTCACTGCTATAACC	HN	241	
		IPCr	TGCAGGATTGATTGTGGC			
IPCp		ROX-CTGATCTAGCTGAACTGAGACTTGCTTTC-BHQ2				
AGE-2	RVA	RVaf	CTGTTCCGAGAGAGCGC	NSP4	132	This work
		RVAr	GGAAAATACGCCATTCCWGG			
		RVAp1	FAM-CGGAAAGATGGAWAAGCTTGCCGACC-BHQ1			
		RVAp2	FAM-CGGAAAGATGGAAAAGTTACCGACC-BHQ1			
	NoV	NoVf1	CAATGTTTCAGRTGGATGAGRTTCTC	VP1	90	
		NoVf2	ATGTTCCGCTGGATGCG			
		NoVr1	TCGACGCCATCTTCATTCAC			
		NoVr2	TCCTTAGACGCCATCATCATTAC			
		NoVp1	R6G-TGGGAGGGCGATCGCAATCT-BHQ1			
		NoVp2	R6G-GAGATCGCRATCTCCTGCCCGA-BHQ1			
	AstV	AstVf	GTTGCTTGCTGCGTTCATG	ORF1b-ORF2	165	
		AstVr	CTAGCCATCACACTYCTTTGGTCC			
		AstVp	ROX-CTCACAGAAGAGCAACTCCATCGCATTTG-BHQ2			
AGE-3	SaV	SaVf1	AATGTSAACTAYGACCAGGCT	ORF1	273	This work

		SaVf2	AACACCAACTATGACCAGGC			
		SaVf3	RAATACAAATTTTGATTGGCC			
		SaVr	CCCTCCATYTCAAACACTAWTTTG			
		SaVp1	FAM-TYGTAGGTGGCGAGAGCCTGG-BHQ1			
		SaVp2	FAM-TTGTAGGTGGCGAGGGCCAAA-BHQ1			
	ReV	OrVf	ATGACTGCGACTGGAGTTGC	ORF1	146	
		OrVr	GATGAGTTGACGCCACCACG			
		OrVp2	ROX-ACGGTCAGCGTGAGTCTACCATGG-BHQ2			
	RVC	RVCf	GAAGCTGTCTGACAAACTGGTC	VP7	126	
RVCr		GTATCAGTTATTAGGTGGAACATTTTCTA				
RVCp		Cy5-ATGTTTTGTACAACATTGTACACTGTTTGGCG-BHQ3				
RT-AGE	EnV, IPC, RVA, NoV, AsfV, SaV, ReV, RVC	EnVRT	GGATGGCCAATCCA			This work
		IPCRT	CAGGACTATGAAAACCATTTAC			
		RVART	AWGGAAAATACGCCAT			
		NoVr1	TCGACGCCATCTTCATTCAC			
		NoVr2	TCCTTAGACGCCATCATCATTAC			
		AsfVRT	CTAGCCATCACACTYCTTT			
		SaVRT1	CAACAGCCARCTCCA			
		SaVRT2	CCATTGCAAGTTCCA			
		OrVRT1	ATGACTGCGACTGGAG			
		OrVRT2	ATGACGGCGACTG			
		RVCf	GAAGCTGTCTGACAAACTGGTC			
Gen1	RVA	G1f	CAAGTACTCAAATCAATGAYGG	G1	127	Primer aBT1 (WHO 2009)
		G1r	GGGTCAACAGAAAAATCAAC			This work
		G1-p	ROX- TCCTGTTGGCCAACCCTTTGTAA - RTQ-2			
		P4f	ACCACATGTYAGTCAAACAA			

		P4r	TAGAGGTTAGAGTCCGTCTATTAGA			Modified from primer 2T-1 (WHO 2009)
		P4-p	R6G-CAAATAGGCAATATGTTTTATTGGTG - RTQ-1			This work
Gen2	RVA	G2f	ATTTTAAAGACTACAATGATATTACTACA	G1	208	This work
		G2r	ATATCCATTATTTGATTGCGCT			
		G2-p	ROX- GAATTAGATGCATCGGAGTTAGCAGATC - RTQ-2			
		P6f	CGACAACRATAGAGCCAGTAC	P6	98	
		P6-r	CTTGTTGATTAGTTGGATTCAA			
		P6-p	R6G- AGCCACCAARCGATTACTGGATA - RTQ-1			
Gen3	RVA	G3f	GCAACAGAAAATAAATGATAATTCA	G3	188	This work
		G3r	ATGTCCAGTTGCAGTGTAGC			Modified from primer 9T-3 (WHO 2009)
		G3-p	ROX- GCCTCGTTTTCAGTTGATCCACAAC - RTQ-2			This work
		P8f1	GCACGTCGATCCAGTAGA	P[8]	228	Modified from primer 1T-1 (WHO 2009)
		P8f2	CGCACGTAAAYCCAGTAGA			
		P8r1	TCAGTAGTAGCTCTYGGTGTTT			
		P8r2	CAGTAGTAGCYCTCGGTGTTT			
		P8-p	R6G- ATGGTGGAAGARTATGGACATTTTCATG - RTQ-1			This work
Gen4	RVA	G4f	GAAGCTCCAACCTCAAATYAG	G4	133	This work
		G4r	GGTCGATGGAAAATTCTAAAAC			Modified from primer 9T-4 (WHO 2009)
		G4-p	ROX- CATCCTTTGGTTAAAAACAGCTGAGATA - RTQ-2			
		I1f	AACAGTTGGACTTACRTTACGT	I2	116	This work
		I1r	CTGGTATAGCATACTCTTGACGYA			
		I1-p	R6G - TGTGAATCAGTGCTTGCGGATG - RTQ-1			
Gen5	RVA	G9f	GAAGCATCAACCTCAAATTGG	G9	197	This work

		G9r	GACATATCTAGCTCTAACGTTGAATC			
		G9-p	ROX- ATCGCTTCATTCTCAATTGATCCACAAC - RTQ-2			
		I2f1	TAGCAAATGTGACATCTGTTAG			
		I2f2	ATGTTAGCTAATGTAACRTCTGTTAG			
		I2r1	GGATACCAAGTGGTTAGCTTG	I2	197/270	
		I2r2	TGGATACCAAGTAATTAGCTCG			
		I2-p	R6G- CATGCTTCTAATGGAAGCCACTGT - RTQ-1			
RT-Gen	RVA	G1RT	TCCAAGTGAAGCAAGT			This work
		P4RT	ATAATAGTGACTTTTGGAC			
		G2RT	TTTTTAACTAAAGGATGG			
		P6RT	GTGAATGATTCGACAAC			
		G3RT	GCAGCAACAGAAATAAA			
		P8RT	TTGGGACCTTGGAAAT			
		G4RT	CTCAACACAAGACAATAAT			
		I1RT	CATGCAACAGTTGG			
		G9RT	GCAAATTCATCACAGC			
		I2RT	CATTTGAACATCATGC			
VP7-seq	RVA	VP7-F	ATGTATGGTATTGAATATACCAC	G	885	Gomara et al 2001
		VP7-R	AACCTGCCACCATTTTTTCC			
VP4-seq	RVA	VP4-F	TATGCTCCAGTNAATTGG	P	664	Simmonds et al 2008
		VP4-R	ATTGCATTTCTTCCATAATG			

Designations of human gastroenteritis viruses: AdV - adenoviruses, EnV - enteroviruses, RVA - group A rotaviruses, NoV - noroviruses, AstV - astroviruses, SaV - sapoviruses, ReV - orthoreoviruses, RVC - group C rotaviruses.

R6G, FAM, ROX and Cy5 are fluorophore molecules, whereas BHQ1, BHQ2, BHQ3, RTQ-1 and RTQ-2 are quencher molecules of TaqMan probes.

IPC - human parainfluenza virus type 2, used as internal positive control.

Note. Validation of the primer mixes AGE-1, AGE-2, AGE-3, RT-AGE, Gen1, Gen2, Gen3, Gen4, Gen5, RT-Gen was carried out earlier (Marova *et al.* 2012; Bakhtoiarov *et al.* 2014).

Reference methods were sequencing, multiplex RT-PCR and agarose gel electrophoresis (WHO 2009).

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