



Correction

Correction: Saarinen, N.V.V., et al. Multiplexed High-Throughput Serological Assay for Human Enteroviruses. *Microorganisms* 2020, 8, 963

Niila V. V. Saarinen ¹, Jussi Lehtonen ¹, Riitta Veijola ², Johanna Lempainen ³, Mikael Knip ⁴, Heikki Hyöty ^{1,5}, Olli H. Laitinen ¹ and Vesa P. Hytönen ^{1,5,*}

¹ Faculty of Medicine and Health Technology, Tampere University, 33520 Tampere, Finland; niila.saarinen@tuni.fi (N.V.V.S.); jussi.lehtonen@tuni.fi (J.L.); heikki.hyoty@tuni.fi (H.H.); olli.laitinen@tuni.fi (O.H.L.)

² Department of Paediatrics, University of Oulu, 90570 Oulu, Finland; riitta.veijola@oulu.fi

³ Department of Paediatrics, University of Turku, 20520 Turku, Finland; johanna.lempainen@utu.fi

⁴ Pediatric Research Center, Children’s Hospital, University of Helsinki and Helsinki University Hospital, and Research Program for Clinical and Molecular Metabolism, Faculty of Medicine, University of Helsinki, 00029 Helsinki, Finland; mikael.knip@helsinki.fi

⁵ Fimlab Laboratories, 33520 Tampere, Finland

* Correspondence: vesa.hytonen@tuni.fi; Tel.: +358-401901517

Received: 10 September 2020; Accepted: 15 September 2020; Published: 17 September 2020



The authors wish to make the following correction to this paper [1]: The protein sequence corresponding to RV-A89 VP1 was erroneous in Table A2.

Table A2. Complete amino acid sequences of the recombinant VP1 antigens. VP1 parts unique to each antigen are typed in **bold**.

Antigen	Sequence
CVA4 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFEL GLEFPNLPYYIDGDVKLQSMIIIRYIADKHNMLGGCPKERAISMLEG AVLDIRYGVSRVIAYSKDFETLKVDFLSKLPMLKMFEDRLCHKTYLNGD HVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLK SSKYIAWPLQGQWQATFGGGDHPPKSDLVPRGSGDAIADAIQNTVTST IQRVTNTVGGQDATAANTAPSSHSLNTGLVPALQAAETGASSTATD GNLIETRCVVNSNGTRETTHIEHFFSRSLVGVMEVDDTGTSGKGF NWDIDIMAFVQLRRKLEAFTYMRFDAEFTFVTNLENGLTNNSVIQY MYVPPGAPKPDARESFWQQTATNPSVFQKMDSPPPQVSVPFMSPAS AYQWFYDGYPTFGPHSETSNLSYGQCPNNMLGTFSARVVSKQITN QKFQIRIYLRKRVRAWIPRLRSQPYIYRNYPTYGTTIQYLAKDRR KITETDYNAEQR THPGHHHHHHHPG

Table A2. Cont.

Antigen	Sequence
CVB1 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE FPNLPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDIR YGVSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFM LYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQG WQATFGGGDHPPKSDLVPRGSGPVEESVERAMVRVADTVSSKPTNSESI PALTAAETGHTSQVVPSDTMQTRHVKNYHSRSESSIENFLCRSACVYY ATYTNNSSKGYAEWVINTRQVAQLRRKLELFTYLRFDLELTFVITSAQQ PSTATSVDAVPQTHQIMYVPPGGPVPTKVTDYAWQTSTNPSVFWTEG NAPPRMSIPFISIGNAYSCFYDGTQFSRNGVYGINLNNMGTYLMRH VNEAGQGPIKSTVRIYFKPKHVKAWVPRPP RLCQYEKQKNVFNPTGVTTRSNITTTGAFPGHHHHHPG
PV1 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE FPNLPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDI RYGVSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPD FMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQ GWQATFGGGDHPPKSDLVPRGSLGQMLSESMIDNTVRETVGAATSRDA LPNTEASGPAHSKEIPALTAJETGATNPLVPSDTVQTRHVQHRSRSESS IESFFARGACVAIITVDNSASTKNKDKLFTVWKITYKDTVQLRRKLEFFT YSRFDMEFTFVV TANFTETNNGHALNQVYQIMYVPPGAPVPEKWDDY TWQTSNPSIFITYGTAPARISVPYVGISNAYSHFYDGFVKVPLKQDSAA LGDSLYGAASLNDFGILAVRVVNDHNPTKVTSKIRVYLKPKHIRVWCPR PPRAVAYYGPVVDYKDGTLTPLSTKDLTTY GHHHHHPG
EV-D68 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE PNLPPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDIR YGVSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFML YDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQG WQATFGGGDHPPKSDLVPRGSLDHLDAEAAAYQIESIIKTATDVTKSEISA ELGVVPSLNAVETGASSNTEPEEAIQTRTVINQHG VSETLVENFLSRAAL VSKRSFEYKNHTSSKARTDKNFFKWTINTKSFVQLRRKLELFTYLRFDA EITILTTAVANGSSNSTYMGLPDLTLQAMFVPTGALTPEKQDSFHWQSG SNASVFFKISDPPARM TIPFMCINSAYSVFYDGFAGFEKSGLYGINPADTI GNLCVRIVNEHQPIGFTVTVRVYMKPKHIKAWAPRPPRTL PYMSIANAN YRGKDRAPNALNAIIGNRESVKTMPHNI VTTPGHHHHHPG
RV-A89 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE PNLPPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDIRY VSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFM LYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQGWQATF GGGDHPPKSDLVPRGS LDHLDAEAAAYQIESIIKTATDVTKSEISAELGVVPSLNAVETGASSNTEPEEAIQTR TVINQHG VSETLVENFLSRAALVSKRSFEYKNHTSSKARTDKNFFKWTINTKSFVQLR RKLELFTYLRFDAEITILTTAVANGSSNSTYMGLPDLTLQAMFVPTGALTPEKQDSFHW QSGSNASVFFKISDPPARM TIPFMCINSAYSVFYDGFAGFEKSGLYGINPADTIGNLCVR IVNEHQPIGFTVTVRVYMKPKHIKAWAPRPPRTL PYMSIANAN YRGKDRAPNALNAIIG NRESVKTMPHNIVTTPGHHHHHPG
RV-B14 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE FPNLPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDIRY YGVSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFM LYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQGWQATF GGGDHPPKSDLVPRGSLGDELEEVIVEKTKQTVASISSGPKHTQK VPILTANETGATMPVLPDSIETRTTYMHFNGETDVECFGLGRAACVHVTEIQNKDATGIDN HREAKLFNDWKINLSSLVQLRKKLELFTYVRFDSEYITLATASQPDSANYSSNLVVQAMVY PPGAPNPKEWDDYTWQSASNPSVFFKVGDTSRFSVPYVGLASAYNCFYDGYSHDDAETQ YGITVLNHMGSMFRIVNEHDEHKTLVKIRVYHRAKHV EAWIPRAPRALPYTSIGRTNYPKNTEPVIKRRKGDIKSYPGHHHHHPG
RV-C3 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLE FPNLPYYIDGDVKTQSMARIYIADKHNMLGGCPKERAISMLEGAVLDIRY YGVSRAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFM LYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKYIAWPLQGWQATF GGGDHPPKSDLVPRGSPNVEEFVEHTLKEVLVVPDTQASGPVHTTK PQALGAVEIGATADVGPETLIETRYVMNDNTNAEAAVENFLGRSALWANLRDQGRKW EINFQEAHQVRKKFEMFTYVRFDEITIVTNNKGLMQIMFVPPGIPPGGDKGREWDTAS NPSVFFQPNSGFPRFTIPFTGLGSAYMYFDGYDGTDDANINYGISLTNDMGTLCFRALDG TGASDIKVFVKPKHITAWIPRPPRATQYLHKFSTNYNPKP TSGSTELEPKHFFKYRQDITSITNLPGHHHHHPG

To the correct version, as follows:

Table A2. Complete amino acid sequences of the recombinant VP1 antigens. VP1 parts unique to each antigen are typed in **bold**.

Antigen	Sequence
CVA4 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV VLTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP EMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPOI DKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSGDAIADAIQNTVTSTIQRVTTNTV GQDATAANTAPSSHSLNTGLVPALQAAETGASSTATDGNLIETRCVVNSNGTRETTHIEHF FSRSLVGVMEVDDTGTSGKGFNSWDIDIMAFVQLRRKLEAFTYMRFDAEFTFVNTLEN GLTNNSVIQYMYVPPGAPKPDARESFQWQTATNPSVFQKMDSPPPQVSVPFMSPASAYQ WFYDGYPTFGPHSETSNSLYGQCPNNMLGTFSARVVSQKITNQKFQIRIYRLKRVRAWI PRPLRSQPYIYRNYPTYGTTIQYLAKDRRKITETDYNAEQR THPGHHHHHHHPG
CVB1 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV LTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP LKMFEEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPOIDK YLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSGPVEESVERAMVRVADTVSSKPTNSE SIPALTAETGHTSQVVPSTMQTRHVKNYHSRSESSIENFLCRSACVYATYTNNSKK GVAEWWINTRQVAQLRRKLELFTYLRFDLELTFVITSAQQPSTATSVDAVPQTHQIMYVP PGGPVPTKVTDYAWQSTNPSVFWTEGNAPPRMSIPFISIGNAYSCFYDGTWQFSRNGV YGINTLNNMGTYMRHVNEAGQGQPIKSTVRIYFKPKHVKAWVPRPP RLCQYEKQKNVNFNPTGVTTRSNITTTGAFFGHHHHHHHPG
VP1 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV KLTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP EMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPOI IDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSLDHLDAEAAAYQIESIITATDTVKS RDALPNTASGPAHSKEIPALTAVETGATNPLVPSDTVQTRHVQHRSRSESSIESFFARG ACVAIITVDNSASTKNKDKLFTVWKITYKDTVQLRRKLEFFYSRFDMEFTFVVTANFTE TNNGHALNQVYQIMYVPPGAPVPEKWDDYTWTSSNPSIFYTYGTAPARISVPYVGISN AYSHFYDGFSGVPLKQSAALGDSLYGAASLNDFGILAVRVVNDHNPTKVTSKIRVYLK PKHIRVWCPRPPRAVAYYGPVVDYKDGTLTPLSTKDLTTY GHHHHHHHPG
EV-D68 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV LTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP LKMFEEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPOIDK YLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSLDHLDAEAAAYQIESIITATDTVKS EISAELGVVPSLNAVETGASSNTEPEEAIQTRTVINQHGVSETLVENFLSRAIYKSRSE YKNHTSSKARTDKNFFKWTINTKSFVQLRRKLELFTYLRFDAEITLTTAVANGSSNSTYM GLPDLTLQAMFVPTGALTPEKQDSFHWQSGSNASVFFKISDPPARMTIPFMCINSAYSVF YDGFAGFEKSGLYGINPDTIGNLVRIVNEHQPIGFTVTVRVYMKPKHIKAWAPRPPRT LPYMSIANANYRGKDRAPNALNAIIGNRESVKTMPHNI VTTPGHHHHHHHPG
RV-A89 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV KLTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP PEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAI POIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSGNPVENYIDSVLNEVLVVPNIQ PSTSVSSHAAPALDAAETGHTSSVQPEDMIETRYVITDQTRDETSIESFLGRSGCIAMIEF NTSSDKTEHDKIGKGFKTWVSLQEMAQIRRYELFTYTRFDSEITIVAAAAQGNDSG HIVLQFMVYVPPGAPVPEKRDDYTWQSGTNASVFWQEGQPYPRFTIPFMSIASAYMYFYD GVDGDSAASKYGSVVTNDMGTCVRIVTSNOKHDSNIVCRIYHKAKHIKAWCPRPPRA VAYQHTSTNYIPSNGEATTQIKTRPDVFTVTNVGPSSMFPGHHHHHHHPG
RV-B14 VP1	MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDV LTQSMIIIRYIADKHNMLGGCPKERAIEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLP PEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPOI DKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSGLGDELEEVIVEKTKQTVASISSGPKHT QKVPILTANETGATMPVLPDSIETRTTYMHFNGETDVECFGLGRAACVHVTEIQNKDA TGIDNHREAKLFNDWKNLSSLVQLRKKLELFTYVRFDSEYITILATASQPDSANYSSNLVV QAMYVPPGAPNPKEWDDYTWQASANPSVFFKVGDTSRFSVPYVGLASAYNCFYDGYSH DDAETQYGITVLNMGMSMAFRIVNEHDEHKTTLKIRVYHRAKHV EAWIPRAPRALPYTSIGRTNYPKNTEPVIKRKGDIKSYPGHHHHHHHPG

Table A2. Cont.

Antigen	Sequence
RV-C3 VP1	MSPILGYWKIKGLVQPTRLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVKLT QSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSR IAYSKDFETLKVDFLSKLPEMLKM FEDRLCHKTYLNGDHSVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIQIDKYLKSSKY IAWPLQGWQATFGGGDHPPKSDLVPRGSNPVEEFVEHTLKEVLVVPDTQASGPVHTTKPQALG AVEIGATADVGPETLIETRYVMNDNTNAEAAVENFLGRSALWANLRDQGFRKWEINFQEHA QVRKKFEMFTYVRFDEITIVTNNKGLMQIMFVPPGITPPGGKDGREWDTASNPSVFFQPNS GFPRFTIPFTGLGSAYYMFYDGYDGTDDANINYGISLTNDMGTLCFRALDGTGASDIKVF GK PKHITAWIPRPPRATQYLHKFSTNYNKPK TSGSTELEPKHFFKYRQDITSITNLPGHHHHHHHPG

The authors would like to apologize for any inconvenience caused to the readers by this change.

Conflicts of Interest: H.H. and M.K. own stocks Vactech Ltd., which develops vaccines against picornaviruses. H.H. is the chairman of the Vactech board. H.H. and M.K. also serve on the scientific advisory board of Provention Bio Inc., which is developing an enterovirus vaccine. The other authors have no conflict of interest to declare. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

1. Saarinen, N.V.V.; Lehtonen, J.; Veijola, R.; Lempainen, J.; Knip, M.; Hyöty, H.; Laitinen, O.H.; Hytönen, V.P. Multiplexed High-Throughput Serological Assay for Human Enteroviruses. *Microorganisms* **2020**, *8*, 963. [[CrossRef](#)] [[PubMed](#)]



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).