Diversity and zoonotic potential of rotaviruses in swine and cattle across Europe.

Group A rotaviruses can infect both humans and animals. Individual rotavirus strains can occasionally cross species barriers and might hereby contribute to the emergence of new genotypes in heterologous hosts. The incidence and impact of zoonotic rotavirus are not well defined, and one reason for this is a lack of data about strains circulating in suspected reservoir animal hosts. In this study we report the incidence, genetic diversity, and molecular epidemiology of rotaviruses detected in domestic cattle and swine in 6 European countries. From 2003 to 2007, 1101 and more than 2000 faecal specimens were collected from swine and cattle, both healthy and diarrhoeic, and tested for rotaviruses. Viruses from positive stools were genotyped and a subset of strains was characterized by nucleotide sequencing and phylogenetic analysis of the VP7 (G) and VP4 (P) genes. Rotaviruses were detected in 43% of bovine samples and in 14% of porcine samples. In cattle, 10 different combinations of G and P types were identified and the most common strains were G6P[11] and G6P[5]. In swine, the number of identified G–P combinations was higher (n = 21), however, no single combination was predominant across Europe. Newly described genotype specificities, P[27] and P[32], were identified in swine. When compared at the nucleotide sequence level, the identified porcine rotavirus strains and contemporary human strains grouped together phylogenetically, whereas bovine rotavirus strains formed separate clades. These data demonstrate large genetic diversity of porcine and bovine rotavirus strains across Europe, and suggest that livestock herds may serve as potential reservoirs for human infections.

General information
State: Published
Organisations: Section for Veterinary Diagnostics, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Virology, Statens Serum Institut, Hungarian Academy of Sciences, University of Valencia, University of Zaragoza, Centre National de Référence des Virus Entériques, Istituto Superiore di Sanita, University of Ljubljana, National Institute of Public Health and the Environment, University of Pecs
Pages: 238-245
Publication date: 2012
Peer-reviewed: Yes

Publication information
Journal: Veterinary Microbiology
Volume: 156
Issue number: 3-4
ISSN (Print): 0378-1135
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.7 SJR 1.175 SNIP 1.241
Web of Science (2017): Impact factor 2.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.65 SJR 1.363 SNIP 1.206
Web of Science (2016): Impact factor 2.628
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.56 SJR 1.413 SNIP 1.21
Web of Science (2015): Impact factor 2.564
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.54 SJR 1.291 SNIP 1.256
Web of Science (2014): Impact factor 2.511
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3 SJR 1.459 SNIP 1.471
Web of Science (2013): Impact factor 2.726
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.18 SJR 1.441 SNIP 1.569
Web of Science (2012): Impact factor 3.127
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.27 SJR 1.56 SNIP 1.729
Web of Science (2011): Impact factor 3.327
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.39 SNIP 1.474
Web of Science (2010): Impact factor 3.256
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.309 SNIP 1.466
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.164 SNIP 1.29
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.048 SNIP 1.315
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.03 SNIP 1.396
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.089 SNIP 1.259
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.873 SNIP 1.248
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.905 SNIP 1.181
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.905 SNIP 1.13
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.828 SNIP 1.051
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.699 SNIP 1.066
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.714 SNIP 1.089

Original language: English
Keywords: Swine, Rotavirus, Cattle, Europe, Genotypes
DOIs:
10.1016/j.vetmic.2011.10.027
Source: orbit
Source-ID: 317434
Research output: Research - peer-review; Journal article – Annual report year: 2012