

# Molecular diagnostics of viral gastroenteritis

Rapid and reliable detection by real-time PCR

- RIDA<sup>®</sup>GENE Norovirus
- RIDA<sup>®</sup>GENE Norovirus I & II
- RIDA<sup>®</sup>GENE Norovirus I & II LC2.0
- RIDA<sup>®</sup>GENE Viral Stool Panel I
- RIDA<sup>®</sup>GENE Viral Stool Panel II
- RIDA<sup>®</sup>GENE Sapovirus
- RIDA<sup>®</sup>GENE Enterovirus



## Gastroenteritis – one of the most common diseases in the world

Acute gastroenteritis is a major cause of morbidity and mortality worldwide. Enteric viruses are the most common cause of gastroenteritis, particularly in children. Diarrhoea is estimated to cause about 1.5 million deaths in children under the age of five, more than AIDS, malaria and measles together. The most important causative viral agents of diarrhoea are norovirus, rotavirus, adenovirus and astrovirus, as well as sapovirus and enterovirus.

**Noroviruses** belong to the family of *Caliciviridae* and are single-stranded RNA (ssRNA) viruses. Gastroenteritis caused by norovirus is manifested by severe nausea, vomiting and diarrhea. Human pathogens have been described for genogroup I (GI), genogroup II (GII) and genogroup IV (GIV). Noroviruses cause by far the most cases of viral gastroenteritis outbreaks. The CDC estimates more than 21 million cases of acute gastroenteritis each year in the United States.

**Rotaviruses** belong to the *Reoviridae* family of double-stranded RNA (dsRNA) viruses. Human infections are only caused by serogroup A, B and C. Symptoms of rotavirus infection are usually vomiting, watery diarrhoea and abdominal pain. It is the main cause of diarrhoea in children aged under five and is responsible for the death of an estimated 611,000 children worldwide each year.

**Adenoviruses** belong to the *Adenoviridae* family of double-stranded (dsDNA) viruses. One differentiates 51 serotypes of human adenoviruses and they are classified into six groups (A - F). Adenoviruses mainly cause respiratory diseases, whereas Gastroenteritis is primarily caused by serotype 40 and 41.

**Astroviruses** are single-stranded (ssDNA) viruses and belong to the family of *Astroviridae*. An astroviral dependent Gastroenteritis is primarily manifested by diarrhoea, but may be accompanied by vomiting and fever. In developed countries, the Astrovirus incidence rates between 2 - 9 %, mainly affecting children under the age of two. To date, serotypes 1 - 5 are most relevant.

**Sapoviruses** are part of the family of *Caliciviridae* and are also major causative agents of gastroenteritis worldwide. Highest incidence is described for children under the age of five, but sapovirus outbreaks have been detected in adults as well. Clinical symptoms are similar to those of norovirus infections including diarrhea, vomiting and fever. However self-limited sapovirus infections lead to much milder gastroenteritis compared to norovirus-induced gastroenteritis.

**Human enterovirus** comprise a variety of different subtypes: poliovirus, coxsackie virus A and B, human enterovirus 70/71 and echovirus and infections are usually asymptomatic or present with mild cold-like symptoms. Severe enterovirus infections are poliomyelitis, Hand, Foot, and Mouth disease, meningitis and myocarditis. Coxsackie viruses are present worldwide and can cause the so called "summer diarrhea". Other severe infections with coxsackie virus or human enterovirus 70/71 can lead to conjunctivitis and myocarditis, whereas echovirus infections can result in aseptic meningitis with echovirus 30 being the most common meningitis causing serotype in Europe, America and Asia.

### RIDA®GENE Norovirus Art. No. PG1405



- Real-time multiplex RT-PCR
- Detection of all human pathogenic genogroups

**RIDA®GENE Norovirus I & II** Art. No. PG1415


- Real-time multiplex RT-PCR
- Differentiation of Norovirus GI and GII

**RIDA®GENE Norovirus I & II LC2.0** Art. No. PG1425


- Specifically designed for use with the LC2.0
- Real-time multiplex RT-PCR
- Differentiation of Norovirus GI and GII

**RIDA®GENE Viral Stool Panel I** Art. No. PG1315


- 5-plex real-time multiplex RT-PCR
- Simultaneous detection and differentiation of Norovirus, Rotavirus, Adenovirus and Astrovirus

**RIDA®GENE Viral Stool Panel II** Art. No. PG1325


- Real-time multiplex RT-PCR
- Simultaneous detection and differentiation of Rotavirus, Adenovirus and Astrovirus

**RIDA®GENE Sapovirus** Art. No. PG1605


- Real-time RT-PCR
- Detection of major human pathogenic genogroups

**RIDA®GENE Enterovirus** Art. No. PG4705


- Real-time RT-PCR
- Detection of human Enterovirus 70/71, Poliovirus, Coxsackievirus and Echovirus

## RIDA® GENE real-time PCR for viral gastrointestinal infections – detection overview

	RIDA® GENE Norovirus	RIDA® GENE Norovirus I & II	RIDA® GENE Norovirus I & II LC2.0	RIDA® GENE Viral Stool Panel I	RIDA® GENE Viral Stool Panel II	RIDA® GENE Sapovirus	RIDA® GENE Enterovirus
<b>Detection</b>	Norovirus	Norovirus GII	Norovirus GI	Adenovirus Norovirus	Rotavirus Astrovirus	Sapovirus	Enterovirus
<b>Thermal Profile</b>	• RNA profile						
<b>Time to result</b>	~ 60 - 90 min*						
<b>Controls</b>	<ul style="list-style-type: none"> <li>• Positive control</li> <li>• Negative control</li> <li>• Internal control RNA</li> </ul>						

\* Dependent on the instrument used.

## Ordering information

Product	Description	Tests	Matrix	Art. No.
<b>RIDA® GENE</b>	<b>Real-time PCR</b>			
RIDA® GENE Viral Stool Panel I	Real-time multiplex RT-PCR for the direct qualitative detection and differentiation of Norovirus, Rotavirus, Adenovirus and Astrovirus in human stool samples	100	Stool	PG1315
RIDA® GENE Viral Stool Panel II	Real-time multiplex RT-PCR for the direct qualitative detection and differentiation of Rotavirus, Adenovirus and Astrovirus in human stool samples	100	Stool	PG1325
RIDA® GENE Norovirus	Real-time RT-PCR for the direct qualitative detection of Norovirus (genogroup I and II) in human stool samples	100	Stool	PG1405
RIDA® GENE Norovirus I & II	Real-time multiplex RT-PCR for the direct qualitative detection and differentiation of Norovirus genogroup I and genogroup II in human stool samples	100	Stool	PG1415
RIDA® GENE Norovirus I & II LC2.0	Real-time multiplex RT-PCR for the direct qualitative detection and differentiation of Norovirus genogroup I and genogroup II in human stool samples on the LightCycler® 2.0	100	Stool	PG1425
RIDA® GENE Sapovirus	Real-time RT-PCR for the direct qualitative detection of Sapovirus in human stool samples	100	Stool	PG1605
RIDA® GENE Enterovirus	Real-time RT-PCR for the direct qualitative detection of Enterovirus (Poliovirus, Echovirus, Coxsackievirus, human Enterovirus 70/71) in human stool and cerebrospinal fluid	100	Stool/CSF	PG4705



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