

Enterovirus

Panel composition

This EQA panel for the detection of Enterovirus consisted of 11 samples containing various concentrations and strains of Enterovirus and 1 negative sample (VTM).

Material and methods

The QCMD panel was prepared using NucliSENS® easyMAG® (bioMérieux) for sample extraction with Specific B protocol (200/50).

Subsequently, the samples were analysed by real-time PCR using ENTEROVIRUS R-gene® (bioMérieux - ref.: 69-005B) on Dx Real Time System (Bio-Rad).

Results and discussion

Panel code	Sample Content	Sample Type*	QCMD Results		ENTEROVIRUS R-gene® Results
			Stock titer (TCID ₅₀ /0.05 mL)	Dilution Factor	Ct (530 nm)
EVRNA 2013-01	Coxsackievirus B3	Core	5.0 x 10 ⁶	1.0 x 10 ⁻⁵	32.49
EVRNA 2013-02	Echovirus 30	Core	2.7 x 10 ⁵	4.0 x 10 ⁻⁶	32.00
EVRNA 2013-03	Coxsackievirus A9	Core	3.0 x 10 ⁶	1.0 x 10 ⁻⁶	35.29
EVRNA 2013-04	Echovirus 11	Core	2.5 x 10 ⁷	1.0 x 10 ⁻⁴	26.69
EVRNA 2013-05	Coxsackievirus B3	Educational	5.0 x 10 ⁶	1.0 x 10 ⁻⁷	Negative
EVRNA 2013-06	Enterovirus 68	Core	1.6 x 10 ⁴	2.0 x 10 ⁻³	27.20
EVRNA 2013-07	Coxsackievirus A16	Core	4.0 x 10 ⁵	1.0 x 10 ⁻⁵	31.04
EVRNA 2013-08	Enterovirus 68	Educational	1.6 x 10 ⁴	2.0 x 10 ⁻⁵	41.25
EVRNA 2013-09	Negative (VTM)	Core	-	-	Negative
EVRNA 2013-10	Enterovirus 71	Core	1.0 x 10 ⁵	1.0 x 10 ⁻⁵	35.22
EVRNA 2013-11	Echovirus 11	Educational	2.5 x 10 ⁷	1.0 x 10 ⁻⁶	41.47
EVRNA 2013-12	Coxsackievirus A24	Core	1.5 x 10 ⁴	1.0 x 10 ⁻⁵	43.03

* «The QCMD EQA panels contain a range of samples, designed to look at different aspects of assay performance. Panel members are designated 'core proficiency samples' on the basis of scientific information, clinical relevance and clinical experience (...). Laboratories are expected to correctly analyse and report the core proficiency samples in order to show acceptable proficiency.» QCMD-2013-general-announcement
Consequently, the educational samples are considered as challenging due to very low concentrations. They are clearly detection limits.

- The 8 “Core” positive Enterovirus samples of Panel EV RNA 2013 are detected with ENTEROVIRUS R-gene®.
- The “Core” negative sample is undetected as expected with ENTEROVIRUS R-gene®.
- 2/3 “Educational” samples are detected with ENTEROVIRUS R-gene®.
- The results show the good sensitivity and specificity of the Enterovirus R-gene®- ref.: 69-005B

Sensitivity of ENTEROVIRUS R-gene®

Analytical sensitivity has been performed on cell culture infected with either Cox-A16, Cox-B1, Cox-A13, Echo-18 or Echo-30. The results show the following LoD95 :

- < 0.1 TCID₅₀/mL for Cox-A16 and Cox-B1
- < 0.01 TCID₅₀/mL for Cox-A13
- < 0.06 TCID₅₀/mL for Echo-18
- < 0.2 TCID₅₀/mL for Echo-30

ENTEROVIRUS R-gene® also detected a Coxsackievirus B3 previously quantified at 910 cp/mL in the Enterovirus RNA EQA 2008 QCMD panel.