Parvovirus B19

Panel composition

This EQA panel for the detection of Parvovirus B19 (B19V) consisted of 7 plasma samples containing various concentrations of B19V type 1 and one negative plasma sample.

Material and methods

The QCMD panel was prepared using NucliSENS® easyMAG® (bioMérieux) for sample extraction according to the Specific B protocol (200/50).
Subsequently, the extracted samples were analysed by real-time PCR using **Parvovirus B19 R-gene®** (bioMérieux - ref.: 69-019B) on ABI 7500 Fast (Applied Biosystems).

Results and discussion

Panel code	Sample Content	Sample status *	QCMD Results Concentration (copies/mL)	QCMD Results Concentration (Log_{10} copies/mL)	Parvovirus B19 R-gene® Results Concentration (Log_{10} copies/mL)	Parvovirus B19 R-gene® Results Delta Log_{10} (copies/mL)
B19 14-01	B19 virus Type 1	Core	103,992	5.02	5.34	0.32
B19 14-02	B19 virus Type 1	Core	1,426	3.15	3.40	0.25
B19 14-03	B19 virus Type 1	Core	113,763	5.06	5.20	0.14
B19 14-04	Negative	Core	Negative	Negative	Negative	Negative
B19 14-05	B19 virus Type 1	Core	1,000,000	6.00	6.35	0.35
B19 14-06	B19 virus Type 1	Educational	219	2.34	2.37	0.03
B19 14-07	B19 virus Type 1	Core	11,376	4.06	4.36	0.30
B19 14-08	B19 virus Type 1	Core	11,015	4.04	4.04	0.00

*«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 2014 general announcement

Consequently, the educational samples are considered as challenging due to very low concentrations. They are clearly detection limits.

- **The 6 «Core» positive samples are detected with Parvovirus B19 R-gene®.**
- **The «Educational» positive sample (i.e. challenging sample) is detected with Parvovirus B19 R-gene®.**
- **The Core negative sample is undetected as expected with the Parvovirus B19 R-gene®.**
- **In term of quantification, the delta Log10 (Copies/mL) is ranging from 0.00 to 0.35, showing the good correlation between QCMD and Parvovirus B19 R-gene® quantifications.**
- **The expected difference (i.e. 1 Log_{10}) between the paired-samples of the panel (B19 14-05 and 14-01) is reached with Parvovirus B19 R-gene®, showing the robustness of the assay.**
- **The results show the good sensitivity and specificity of the Parvovirus B19 R-gene® - ref.: 69-019B.**

Sensitivity of Parvovirus B19 R-gene®

Analytical sensitivity has been determined on a range of dilution from the 2nd WHO International Standard, prepared either in whole blood or plasma. The results obtained indicate there is a :
- 95 % probability to detect Parvovirus B19 in whole blood containing 246.4 IU/mL (or 47 copies/mL)
- 95 % probability to detect Parvovirus B19 in plasma containing 75 IU/mL (or 70 copies/mL)

Parvovirus B19 R-gene®

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