gb PHARM BCHE

Clinical implications

Butyrylcholinesterase (BCHE) is an enzyme involved in the metabolism of the myorelaxans suxamethonium (succinylcholine) and mivacurium. Decreased activity of this enzyme results in higher plasma drug concentrations and prolonged muscle paralysis associated with the need for pulmonary ventilation. The most common genetic predispositions leading to pseudocholinesterase deficiency include the BCHE variants A, K, F and S1. In patients diagnosed with genetic alterations in the BCHE gene, it is recommended to use alternative agents to myorelaxants suxamthonium and mivacurium, which have available antidotes, eliminating the risk to the patient and the financial cost of subsequent artificial pulmonary ventilation.

Principle of detection

The kit is used for determination of genotype of five polymorphisms: A (D70G, rs1799807), K (A539T, rs1803274), F1 (T243M, rs28933389), F2 (G390V, rs28933390), S1 (FS117, rs398124632). The principle of detection is based on real-time PCR by fluorescently labeled probes (allelic discrimination).

Available products

Cat. No.	Product	rxn
3256-025	gb PHARM BCHE	25

1 kit contains reagents to provide 25 PCR reactions (20 µl volume of each reaction).

Parameters of the diagnostic kit

- ***in vitro* diagnostics**
- **CE IVD marked**
- **ready-to-use assay**
- **sample concentration 10-100 ng/µl**
- **positive and negative controls included**
- **FAM and HEX channels detection**
- **identical amplification profile as gb PHARM, gb HEMO, gb GENETIC kits**

Content of the diagnostic kit

*	Component [1]	Amount.	QTY [2]	Conc.
	Assay qPCR BCHE*A	0.4 ml	1	1.25×
	Assay qPCR BCHE*K	0.4 ml	1	1.25×
	Assay qPCR BCHE*F1	0.4 ml	1	1.25×
	Assay qPCR BCHE*F2	0.4 ml	1	1.25×
	Assay qPCR BCHE*S1	0.4 ml	1	1.25×
	Standard WT BCHE	0.2 ml	1	10^4 cop/µl
	Standard MUT BCHE	0.2 ml	1	10^4 cop/µl
	Standard HET BCHE	0.2 ml	1	10^4 cop/µl
	Deionized water	1.0 ml [3]	2	

1) Lid colour corresponds with reagent type.
2) Number for kit size of 25 rxn.
3) 0.4 ml equates to 25 PCR reactions of 20 µl of volume.
4) Overall concentration of WT and MUT copies in 1:1 ratio.

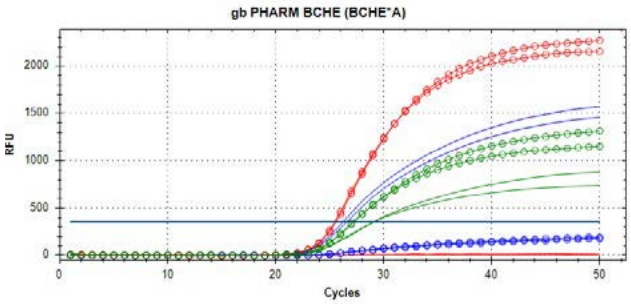

*Fig. 1 – Assay qPCR BCHE*A - detection of standards on CFX96 device. blue line – wild type; red line – mutant; green line – heterozygote; smooth line – FAM channel; dotted line – HEX channel*

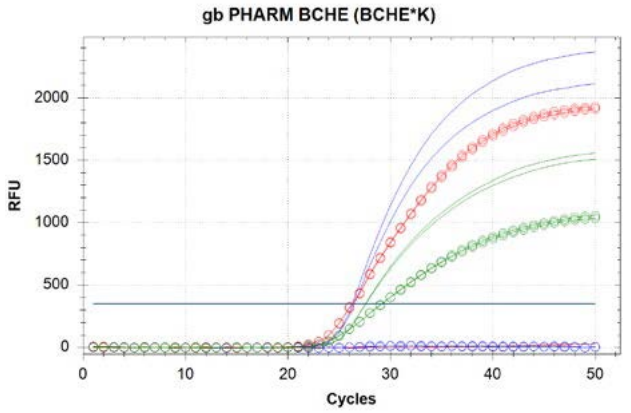

*Fig. 2 – Assay qPCR BCHE*K - detection of standards on CFX96 device. blue line – wild type; red line – mutant; green line – heterozygote; smooth line – FAM channel; dotted line – HEX channel*

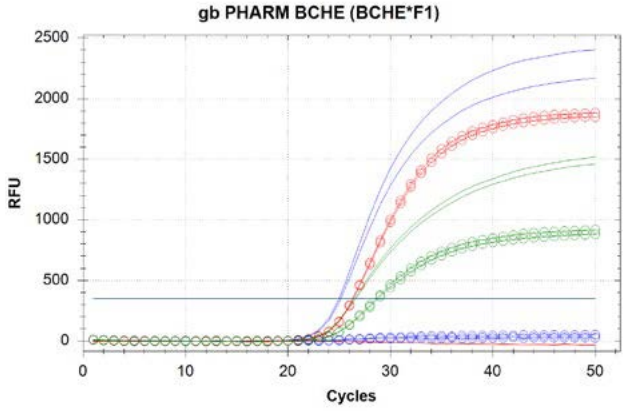

*Fig. 3 – Assay qPCR BCHE*F1 - detection of standards on CFX96 device. blue line – wild type; red line – mutant; green line – heterozygote; smooth line – FAM channel; dotted line – HEX channell*

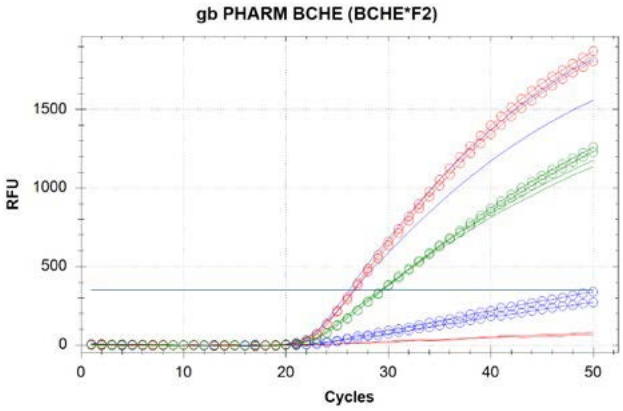

*Fig. 4 – Assay qPCR BCHE*F2 - detection of standards on CFX96 device. blue line – wild type; red line – mutant; green line – heterozygote; smooth line – FAM channel; dotted line – HEX channel*

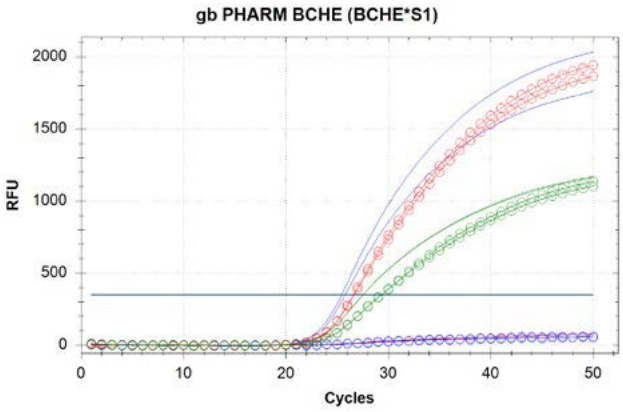

*Fig. 5 – Assay qPCR BCHE*S1 - detection of standards on CFX96 device. blue line – wild type; red line – mutant; green line – heterozygote; smooth line – FAM channel; dotted line – HEX channel*

Validated for cyclers

- CFX Opus 96 (Bio-Rad)
- CFX96/96Touch (Bio-Rad)
- Light Cycler 480/Cobas z480 (Roche Diagnostics)
- QuantStudio 5 (Applied Biosystems)
- RG 3000 (Corbett Research)