INTRODUCTION

Sanger sequencing and polymerase chain reaction (PCR) methods have been the standard molecular methods in clinical diagnostics for decades. Next-Generation Sequencing (NGS) technology revolutionized the field of genomics, transcriptomics and metagenomics and is now swiftly becoming a routine method in different areas of clinical diagnostics [1,2].

RESULTS

Vela Diagnostics developed an integrated automated multi-purpose Sentosa® workflow, which consists of:
1) A customized version of the epMotion 5075 (Eppendorf) robotic liquid handling system for nucleic acid extraction, PCR set-up and/or NGS library preparation (Sentosa® SX101);
2) Instruments for real-time PCR (Rotor-Gene Q or ABI 7500) or template preparation and deep sequencing (PGM, Ion Torrent) [3];
3) Kits for nucleic acid extraction, real-time PCR-based tests, NGS library preparation assays and reagents for deep sequencing;
4) Flexible and easily customizable assay specific applications;
5) Data analysis and reporting software.

Different diagnostic applications employ the same robotic platform for qPCR set-up and preparation of NGS libraries (Fig. 1).

CONCLUSION

Combined automated qPCR and NGS Sentosa® workflow is a reliable and efficient in vitro diagnostics tool for the detection and/or quantitation of a wide range of bacterial and viral pathogens as well as gene mutations. Unique abilities of the Sentosa® workflow provide complete and relevant information to aid clinical decision-making and patient management.

REFERENCES


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