International Standard

ISO 25184

Molecular biomarker analysis — Nucleotide sequencing — Verified next generation sequences (VNGS)

Analyse des biomarqueurs moléculaires — Séquençage nucléotidique — Séquences vérifiées de nouvelle génération (VNGS)

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Foreword

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 16, *Horizontal methods for molecular biomarker analysis,* in collaboration with AOAC INTERNATIONAL. It is being published by ISO and separately by AOAC INTERNATIONAL. The requirements described in this document are equivalent to the Official Methods of Analysis of AOAC INTERNATIONAL, Appendix T, *Standard Requirements for Nucleotide Sequences used in Biothreat Agent Detection, Identification, and Quantification: Verified New Generation Sequences (VNGS)*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Nucleotide sequencing is cross-cutting across biomolecular methods in agriculture, food production and the life sciences. Bioinformatic analytical methods and pipelines require reliable reference sequences for comparison with unknown sample sequences. The verified next generation sequence (VNGS) concept was developed by the AOAC INTERNATIONAL. It is designed to provide the requirements necessary for a reliable and accurately determined next generation reference sequence. This document provides the requirements for a VNGS.

Molecular biomarker analysis — Nucleotide sequencing — Verified next generation sequences (VNGS)

1 Scope

This document specifies requirements for reference next generation nucleotide sequences.[1][2]

This document is applicable to all verified next generation (VNGS) nucleotide sequences determined by next generation sequence (NGS) technology that are accessible on the semantic web and included in a database (public or private).[3][4][5][6]

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16577, *Molecular biomarker analysis — Vocabulary for molecular biomarker analytical methods in agriculture and food production*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16577 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
alignment
sequence alignment
arrangement of *nucleotide sequences* (3.27) so that regions of similarity versus dissimilarity, polymorphic regions and haplotype are shown

3.2
ASCII character set
American Standard Code for Information Interchange character set
character encoding standard for electronic communication

3.3
assemblies
set of DNA segments or sequences that overlap in a way that provides a contiguous representation of a genomic region

3.4
base calling
computational process in massively parallel sequencing for translating raw optical and electrical signals to *nucleotide sequence* (3.27)