

Molecular Diagnostics Of Infectious Diseases

[DOWNLOAD HERE](#)

1;Preface;5 2;1 Choice of adequate sample material;17 2.1;1.1 Viruses;17 2.2;1.2 Bacteria;33 2.3;1.3 Fungi;38 2.4;1.4 Protozoa;40 3;2 Stability of the specimen during preanalytics;41 3.1;2.1 Degradation of DNA;41 3.2;2.2 Degradation of RNA;42 3.3;2.3 Inhibitors of PCR;43 3.4;2.4 How can contamination during specimen collection and in the laboratory be avoided?;44 3.5;2.5 How can the sample identity be ensured?;44 3.6;2.6 Transport of diagnostic material;44 3.6.1;2.6.1 Category A Infectious Substances;45 3.6.2;2.6.2 Category B Infectious Substances;45 3.6.3;2.6.3 Exempt patient specimens;46 3.7;2.7 Stability of nucleic acids of selected pathogens during preanalytics;46 3.7.1;2.7.1 Human immunodeficiency virus type 1 (HIV-1) RNA;46 3.7.2;2.7.2 Hepatitis B virus (HBV) DNA;47 3.7.3;2.7.3 Hepatitis C virus (HCV) RNA;47 3.7.4;2.7.4 Chlamydia trachomatis and Neisseria gonorrhoeae DNAs;48 3.7.5;2.7.5 Viral pathogens producing respiratory tract infections;48 3.7.6;2.7.6 Pathogens in stool specimens;49 3.8;2.8 Take-home messages;49 3.9;2.9 Further reading;49 4;3 Quality assurance and quality control;51 4.1;3.1 Accreditation issues;51 4.2;3.2 Validation and verification work;52 4.3;3.3 Components of validation work;52 4.3.1;3.3.1 Internal and external quality controls;52 4.3.2;3.3.2 Proficiency testing;55 4.3.3;3.3.3 Validation of employee competency;56 4.3.4;3.3.4 Instrument maintenance and calibration;56 4.3.5;3.3.5 Correlation with clinical findings;56 4.4;3.4 Components of verification work;57 4.4.1;3.4.1 Components of verification work for IVD/CE labeled and/or FDA-approved or -cleared tests or test systems;58 4.4.2;3.4.2 Components of verification work for laboratory-developed tests or test systems;60 4.5;3.5 Take-home messages;61 4.6;3.6 Further reading;62 5;4 Extraction of nucleic acids;63 5.1;4.1 Manual nucleic acid extraction protocols;63 5.2;4.2 Automated nucleic acid extraction platforms;63 5.2.1;4.2.1 Technology principle;64 5.2.2;4.2.2 Desirable features of automated platforms;64 5.3;4.3 Preparation of PCR mixes and addition of eluates;66 5.4;4.4 Currently frequently used commercially available platforms for nucleic acid extraction;66 5.5;4.5 Take-home messages;67 5.6;4.6 Further reading;68 6;5 Amplification and detection methods;69 6.1;5.1 Nucleic acid-based tests;70 6.2;5.2 Target amplification methods;71 6.2.1;5.2.1 Real-time polymerase chain reaction (qPCR);72 6.2.2;5.2.2 Isothermal amplification techniques;78 6.2.3;5.2.3 Next generation sequencing

(NGS);81 6.3;5.3 Signal amplification methods;81 6.3.1;5.3.1 Branched DNA (bDNA);82 6.3.2;5.3.2 Hybrid capture assay;82 6.4;5.4 What are the key challenges for the future?;83 6.5;5.5 Take-home messages;84 6.6;5.6 Further reading;84 7;6 Interpreting and reporting molecular diagnostic tests;85 7.1;6.1 Qualitative and quantitative detection of viral infections;85 7.2;6.2 Detection of bacterial infections;85 7.3;6.3 Quantitative endpoint PCR;86 7.4;6.4 Real time PCR;88 7.5;6.5 Reporting results;88 7.5.1;6.5.1 Genetic names;90 7.5.2;6.5.2 Recommendations for reporting results of molecular tests;90 7.5.3;6.5.3 Recommendations for the contents of the molecular test report;91 7.6;6.6 Interpretation;92 7.7;6.7 Important issues when clinically interpreting molecular diagnostic results;93 7.8;6.8 Take-home messages;93 7.9;6.9 Further reading;94 8;7 Human immunodeficiency virus;95 8.1;7.1 Major symptoms;97 8.1.1;7.1.1 Untreated individuals;97 8.1.2;7.1.2 Treated individuals;98 8.2;7.2 Preanalytics;98 8.2.1;7.2.1 Specimen collection;98 8.2.2;7.2.2 Clinical circumstances for using NAT to diagnose HIV infection;99 8.2.3;7.2.3 Clinical circumstances for using NAT to monitor HIV infection;100 8.3;7.3 Analytics;101 8.3.1;7.3.1 Main technologies for NAT;101 8.3.2;7.3.2 HIV RNA assays;101 8.3.3;7.3.3 HIV DNA assays;103 8.3.4;7.3.4 HIV resistance assays;103 8.3.5;7.3.5 HIV tropism assays;105 8.3.6;7.3.6 Assays fo EAN/ISBN : 9783110278927 Publisher(s): De Gruyter Format: ePub/PDF Author(s): Kessler, Harald H.

[DOWNLOAD HERE](#)

Similar manuals:

[Molecular Diagnostics Of Infectious Diseases](#)

[Molecular Diagnostics Of Infectious Diseases](#)