

## Next-generation sequencing applications in clinical microbiology and infection prevention

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### Editorial

Current molecular nosology of human pathogens give restricted info that's usually not decent for natural event and transmission investigation. Next generation sequencing (NGS) determines the DNA sequence of a whole microorganism order during a single sequence run, and from these information, info on resistance and virulence, likewise as info for writing is obtained, helpful for natural event investigation. The obtained order information is more used for the event of AN outbreak-specific screening take a look at. during this review, a general introduction to NGS is conferred, together with the library preparation and also the major characteristics of the foremost common NGS platforms, like the MiSeq (Illumina) and also the particle PGM™ (ThermoFisher). an summary of the computer code used for NGS information analyses used at the medical biology diagnostic laboratory within the University center Groningen within the The Netherlands is given. moreover, applications of NGS within the clinical setting area unit delineated, like natural event management, molecular case finding, characterization and police investigation of pathogens, speedy identification of microorganism victimization the 16S-23S rRNA region, taxonomy, metagenomics approaches on clinical samples, and also the determination of the transmission of animal disease micro-organisms from animals to humans. Finally, we tend to share our vision on the employment of NGS in personal biology within the close to future, noting specific necessities.

Identification and characterization of micro-organisms that cause infections area unit crucial for self-made treatment, recovery and safety of patients. However, not each microorganism species is with success civilised within the diagnostic laboratory, and also the on the market molecular tests area unit unable to discover rising genetic options in with success evolving pathogens that unfold in humans, animals and also the setting. Unrecognized pathogens will simply cause hospital outbreaks, putt patients in danger throughout their hospital admissions.

During the last twenty years, molecular diagnostic strategies have tough a speedy development ANd vie an more and more necessary role in medical biology laboratories (Buchan and Ledeboer, 2014). These strategies have reduced the work time from receiving the sample to the ultimate result, and created it attainable to discover non-cultivable pathogens. However, molecular strategies want a priori data of the possible unhealthful species that would be gift within the sample. one amongst the molecular strategies employed in medical biology laboratories is that the sequence analyses of genes or the complete order of pathogens.