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MALDI-TOF mass spectrometry-based identification of bacterial pathogens in China

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Abstract

Aims: According to the need of clinic diagnosis, communicable diseases control and prevention and food safety use, a database and related software for MALDI-TOF Mass Spectrometry-based Identification of bacterial pathogens should be set.

Methods: grant amount of reference strains and isolates of bacterial pathogens were got, identified by classical and molecular methods, and tested by MALDI-TOF Mass Spectrometry. All the peptide mass fingerprinting data was analysis by bio-informatics, the new computerized algorithm and related database were set. The new algorithms and database were tested compared with 16S rRNA sequence analysis and the identification by other software (such as Biotyper system or SARAMIS database).

Results: A new database and software, named MicroID, was set up, and successfully used in bacterial pathogens identification. The results (such as for the identification of *Helicobacter spp*., *Acinetobacter spp.*, and so on) shown that a more accurate and quick method of MALDI-TOF Mass Spectrometry-based Identification of bacterial pathogens was set.

Conclusion: Based on the Micro ID software system, a more accurate and quick method of MALDI-TOF Mass Spectrometry-based Identification of bacterial pathogens was set in China.

Biography

Prof. Jianzhong Zhang, Ph.D & MD, advisor for Ph.D candidates. President of Chinese Society of Public Health, Chinese Medical Association (CMA). Deputy director of National Institute for Communicable Disease Control and Prevention (ICDC), Chinese Center for Disease Control and Prevention (China CDC). Director of Department of Diagnosis, ICDC, China CDC (involving in the study of Helicobacter pylori(H.pylori), Campylobacter jejuni （C. jejuni）, Streptococcosis , Staphylococcus aureus, Mycoplasma , Acinetobacter baumannii and MALDI-TOF Mass Spectrometry -based Identification of bacterial pathogens). He is the member of the editorial committee for Helicobacter. As the Member of Chinese Society and American Society for Microbiology, Prof. Zhang has great interests in the molecular biological studies on bacteria, including the biological characters and pathogenicity of H.pylori, H.pylori vaccine, Guillain-Barre Syndrome related C. jejuni, the relationship of H.pylori infection and gastric cancer, epidemic diseases diagnosis, DNA chip development, the proteomic research and the antibiotic resistance study of bacteria. He has published more than 170 papers and books. He is currently in charge of two ongoing projects on the diagnostic method development for communicable diseases control and prevention.