Towards a new approach for fast diagnosis of tuberculosis using gas chromatography-mass spectrometry
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Towards a new approach for fast diagnosis of tuberculosis using gas chromatography-mass spectrometry

Ngoc A Dang
Towards a new approach for fast diagnosis of tuberculosis using gas chromatography-mass spectrometry
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PhD thesis, University of Amsterdam, The Netherlands

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Faculteit der Natuurwetenschappen, Wiskunde en Informatica
Dedicated to my mom
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| Complete name                                                                 | Abbreviation |
|------------------------------------------------------------------------------|--------------|
| Tuberculosis                                                                  | TB           |
| *Mycobacterial Tuberculosis*                                                  | MTB          |
| Non-tuberculous mycobacteria                                                  | NTM          |
| Multidrug-resistant tuberculosis                                              | MDR-TB       |
| Human Immunodeficiency Virus                                                  | HIV          |
| Mycobacteria Growth Indicator Tube                                            | MGIT         |
| Point of care                                                                 | POC          |
| *Mycobacterium avium subspecies paratuberculosis*                             | MAP          |
| Polymerase Chain Reaction                                                     | PCR          |
| Nucleic-acid amplification test                                               | NAAT         |
| Colony-Forming Unit                                                           | CFU          |
| Oleic Acid Albumin Dextrose and Catalase                                      | OADC         |
| Zielh-Neelsen                                                                | ZN           |
| Gas chromatography-Mass spectrometry                                          | GC-MS        |
| Liquid Chromatography                                                         | LC           |
| Flame Ionization Detector                                                     | FID          |
| Nuclear Magnetic Resonance                                                    | NMR          |
| Selected Ion Monitoring                                                       | SIM          |
| Electron Impact Ionization                                                    | EI           |
| Chemical Ionization                                                           | CI           |
| Total Ion Chromatogram                                                        | TIC          |
| Thermally-assisted Hydrolysis and Methylation Gas Chromatography-Mass spectrometry | THM-GC-MS    |
| Large Volume Injection                                                        | LVI          |
| Standard Deviation                                                            | SD           |
| Programmed Temperature Vaporizing                                             | PTV          |
| Frequency Pulsed Electron Capture-Gas                                         | FPEC-GC      |
| Chromatography                                                                |              |
| Negative-Ion Chemical Ionization                                              | NICI         |
| Liquid-Liquid Extraction                                                      | LLE          |
| Solid-Phase Extraction                                                        | SPE          |
| Method                                                                 | Abbreviation  |
|-----------------------------------------------------------------------|--------------|
| Solid-Phase-Micro-Extraction                                           | SPME         |
| Stir-Bar-Sorptive-Extraction                                           | SBSE         |
| Comprehensive two dimensional GC                                      | GC×GC        |
| Multidimensional heart-cut Gas                                        | MD-GC/GC-MS  |
| Chromatography-Mass Spectrometry                                     | MALDI ToF/MS |
| Time-of-Flight Mass Spectrometry                                      | SIFT-MS      |
| Selected Ion Flow Tube Mass Spectrometry                             | TD-GC-MS     |
| Proton Transfer Reaction-Mass Spectrometry                           | PTR-MS       |
| Tuberculostearic acid                                                 | TBSA         |
| Hexacosanoic acid                                                     | C26          |
| Fatty Acid Methyl Esters                                              | FAMEs        |
| Chloroform/Methanol/Water                                             | CMH          |
| Tetramethyl Ammonium Hydroxide                                        | TMAH         |
| Phosphate buffered saline                                             | PBS          |
| N,N-Dimethyldodecanamide                                              | NNDMD        |
| Partial Least Squares Discriminant Analysis                           | PLSDA        |
| Standards for Reporting of Diagnostic Accuracy                        | STARD        |
| Fluorescent microscopy                                                | FM           |
| Cerebrospinal Fluid                                                   | CSF          |
| Trehalose-6-Monomycolates                                             | TMM          |
| Trehalose-6,6'-Dimycocycles                                           | TDM          |
| Polyacyltrehalose                                                     | PAT          |
| 2,3-Di-O-acyltrehalose                                                | DAT          |
| Phthiocerol Dimycocosates                                             | PDIM         |
| 2,3,6,60-tetraacyl α-α'-trehalose-20-sulfate Sulfatide                | SL-I         |
| Volatile Organic Compounds                                            | VOCs         |
| Receiver Operating Characteristic                                     | ROC          |
| Area Under the ROC curve                                              | AUROC        |
| Hierarchical Cluster Analysis                                         | HCA          |
| Principal Component Analysis                                          | PCA          |
| Method                                      | Abbreviation |
|---------------------------------------------|--------------|
| Orthogonal Projections to Latent Structures | O-PLS        |
| Neural Networks                             | NN           |
| Support Vector Machines                     | SVM          |
| Classification of Regression Trees          | CLART        |