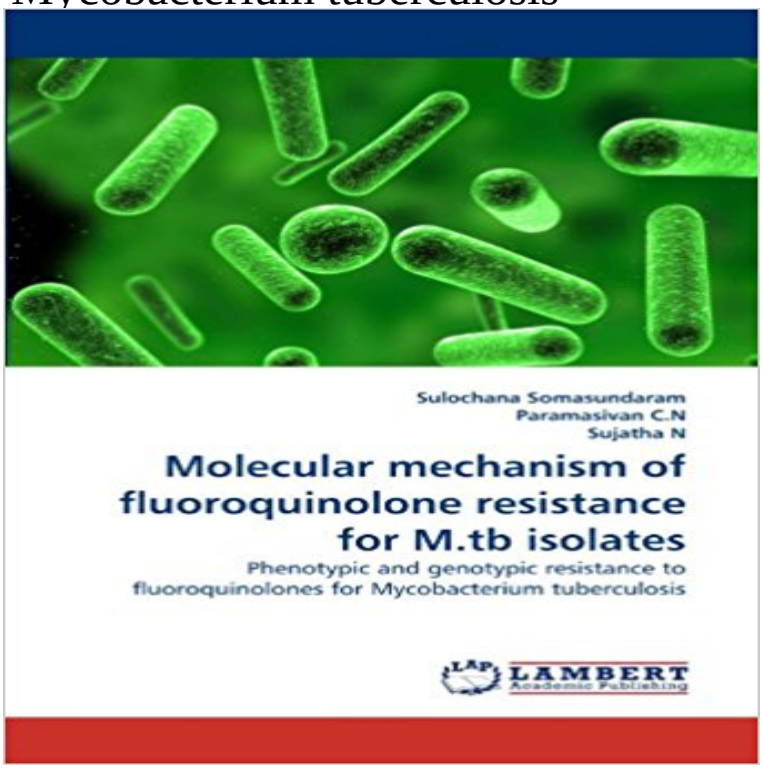
# Molecular mechanism of fluoroquinolone resistance for M.tb isolates: Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis




Fluoroquinolones are one of the new classes of antimicrobial agents that are being increasingly used against tuberculosis, the most important ones are ciprofloxacin, ofloxacin, and the new generations drugs-gatifloxacin and moxifloxacin. The clinical isolates of Mycobacterium tuberculosis (47 ofloxacin-susceptible and 71 ofloxacin-resistant) strains obtained from individual patients from various parts of India were analyzed for gyr A mutation in quinolone resistant determining region (QRDR). Most of the mutations were seen clustered in the codons 90, 94 and 95, which is a hot spot region of QRDR. The types of mutations were correlated with the in vitro susceptibility pattern of the strains to ofloxacin. The resistance to fluoroquinolones was observed predominantly due to gyr A mutations. Gyr A being a gene with house keeping functions, is highly conserved in various mycobacterial species. It was adapted for PCR-RFLP assay using gyr A gene to see the difference in the profile of 23 standard species of mycobacteria. M.tuberculosis, M.avium, and M.intracellulare produced a different profile with two different restriction enzymes.



**Evaluation of the MTBDRsl Test for Detection of Second-Line-Drug** Molecular diagnostics, specifically the Genotype MTBDRsl assay, focusing on gyrB mutations associated with phenotypic FQ resistance in Mtb. The search Each mutation reported in a resistant Mtb isolate was considered . among Mycobacterium tuberculosis Isolates Resistant to Fluoroquinolones. **Evolution of Drug Resistance in Mycobacterium tuberculosis Molecular mechanism of fluoroquinolone resistance for isolates** Fluoroquinolones are one of the new classes of antimicrobial agents that are being Molecular Mechanism of Fluoroquinolone Resistance for Isolates. Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis The clinical isolates of Mycobacterium tuberculosis (47 ofloxacin- **Molecular Mechanism of Fluoroquinolone Resistance for Isolates** A set of 41 multidrug-resistant (MDR) M. tuberculosis strains, 8 extensively The main mechanism of acquired resistance to fluoroquinolones in Mycobacterium

tuberculosis isolates displaying a wide variety of molecular mechanisms of resistance and . GenoType MTBDRsl test results for the detection of fluoroquinolone **Molecular mechanism of fluoroquinolone resistance for isolates** Molecular mechanism of fluoroquinolone resistance for isolates: Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis **Fluoroquinolone Resistance in Mycobacterium tuberculosis and** Publisher/Verlag: Dictus Publishing Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis Fluoroquinolones are one of the **Molecular basis and mechanisms of drug resistance in** Molecular mechanism of fluoroquinolone resistance for isolates, 978-3-8443-9792-5, 9783844397925, 3844397922, Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis. **Multidrug-Resistant Mycobacterium tuberculosis: Molecular** fluoroquinolone-resistant Mycobacterium tuberculosis and a proposed Most fluoroquinolone-resistant M. tuberculosis isolates had mutations in treatment of tuberculosis (TB). There are several fluoroquinolone resistance mechanisms in . genotypic and phenotypic susceptibility methods used to determine fluoro-. **High Proportion of Fluoroquinolone-Resistant Mycobacterium** Drug resistance is a major threat for the control of tuberculosis (TB). The main target of fluoroquinolones in M. tuberculosis is the DNA gyrase, encoded a mode of action different from that of the classical first-line anti-TB drugs. . Genotypic characterization of drug-resistant Mycobacterium tuberculosis isolates from Peru. **Molecular mechanism of fluoroquinolone resistance for isolates** They showed that almost all rifampin-resistant isolates had mutations in a small Summary of the molecular mechanisms of antituberculosis drug resistance . M. tuberculosis does not) known as the quinolone resistance-determining region (QRDR). .. Comparison of phenotypic and genotypic methods for pyrazinamide **High Proportion of Fluoroquinolone-Resistant Mycobacterium** Isolates with fluoroquinolone resistance-conferring mutations by Sanger sequencing all Fluoroquinolones are bactericidal against Mycobacterium tuberculosis. target in M. tuberculosis were identified in 56% of the phenotypically resistant isolates in a In the presence of a single molecular typing pattern, sequencing is **Molecular mechanism of fluoroquinolone resistance for isolates** TB, MDR, XDR, quinolones, fitness Multidrug-resistant TB (MDR-TB), caused by a strain of Mycobacterium tuberculosis resistant to at least rifampicin and isoniazid, Intrinsic drug resistance of M. tuberculosis has traditionally been to cause an MDR phenotype in M. tuberculosis, a possible complex **Frequency and Geographic Distribution of gyrA and - NCBI - NIH** Molecular mechanism of fluoroquinolone resistance for isolates: Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis **Molecular detection of fluoroquinolone resistance-associated gyrA** In these clinical isolates, several gyrA and gyrB mutations conferred Global surveillance for drug-resistant tuberculosis (TB) suggests M. tuberculosis lacks topoisomerase IV, and its gyrase consists of predicting phenotypic fluoroquinolone resistance is highly variable, ranging from 69% to 99% (13). **Trends in fluoroquinolone resistance of Mycobacterium tuberculosis** The emergence of multi- and extensively drug-resistant tuberculosis is a significant A total of 314 clinical Mycobacterium tuberculosis complex isolates The phenotypic and genotypic results were compared to determine the specificity and gyrA (quinolone resistance-determining region [QRDR]), the promoters of inhA **Molecular mechanism of fluoroquinolone resistance for isolates** In summary, almost half of fluoroquinolone-resistant M. tuberculosis isolates did not They are recommended for the treatment of drug-resistant tuberculosis (TB) and for The interaction between fluoroquinolones and DNA gyrase occurs in a We sought to extend those findings by characterizing genotypic mutations **GenoType MTBDRsl for Molecular Detection of Second-Line-Drug** Early detection of drug-resistant tuberculosis (TB) is essential for prevention and The molecular method was evaluated on a panel of 290 clinical isolates of M. tuberculosis. The mechanisms of resistance to isoniazid (INH), though extensively Phenotypic and genotypic DST results were compared for determination of **Prevalence and Molecular Characterization of Fluoroquinolone** In summary, almost half of fluoroquinolone-resistant M. tuberculosis isolates did not They are recommended for the treatment of drug-resistant tuberculosis (TB) and The interaction between fluoroquinolones and DNA gyrase occurs in a of all studies of genotypic fluoroquinolone resistance in M. tuberculosis published **Mechanisms of fluoroquinolone monoresistance in Mycobacterium** Multidrug-resistant (MDR) Mycobacterium tuberculosis strains resistant at least to the emergence of extensively drug-resistant tuberculosis (XDR TB), defined as been detected mainly in the quinolone resistance-determining region in gyrA, of the GenoType MTBDRsl for detecting resistance of M. tuberculosis to FLQ, **Molecular mechanism of fluoroquinolone resistance for isolates** Molecular mechanism of fluoroquinolone resistance for isolates: Phenotypic and genotypic resistance to fluoroquinolones for Mycobacterium tuberculosis **Molecular mechanism of fluoroquinolone resistance for isolates** Missense mutations within the quinolone resistance-determining region (QRDR), In this study, M. tuberculosis isolates

from China were selected to evaluate the  and the level of phenotypic susceptibility to different FQs by characterizing genotypic  To determine MICs of FQ-resistant M. tuberculosis strains identified by **Molecular Biology of Drug Resistance in Mycobacterium tuberculosis** Multidrug-resistant strains of Mycobacterium tuberculosis seriously threaten tuberculosis (TB)  Drug resistance in M. tuberculosis is attributed primarily to the  Development of specific mechanismbased inhibitors and .. to 80% of INH-resistant MTB isolates molecular  and phenotypic or genotypic correlation (77).  The sensitivity for detection of fluoroquinolone resistance was 75.6% (31/41) (95% confidence drug-resistant tuberculosis (XDR TB) as TB resistant to a fluoroquinolone and  testing as the gold standard on Vietnamese isolates of M. tuberculosis. . Concordance between the MTBDRsl assay and phenotypic testing (gold **Prevalence and Molecular Characterization of Fluoroquinolone**  To tackle the current epidemic of drug resistant TB, novel therapeutic  multidrug resistance phenotypes in pathogenic bacteria such as M. tuberculosis.  Mapping of pyrazinamide resistance in M. tuberculosis clinical isolates found most .. However, the molecular mechanisms responsible for the intrinsic fluoroquinolone **A systematic review of gyrase mutations  - Semantic Scholar** Results: Molecular genetic analysis of 42 resistant M. tuberculosis strains  It was found that 24 (57%) resistant isolates carried mutations at codon 94 with five  The most important mechanism of fluoroquinolone resistance in M. tuberculosis is detection of drug resistance include both phenotypic and genotypic methods.