

Geographic Patterns of Nontuberculous Mycobacteria Diversity in Southeastern China: *Insights from a Multiplex PCR-Based Surveillance Study*

Aijie Fang¹, Qingge Li^{1,2}

¹Zeesan Biotech - Xiamen (China), ²Xiamen University - Xiamen (China)

INTRODUCTION

Nontuberculous mycobacteria (NTM) have increasingly been recognized as significant pathogens in the global rise of pulmonary diseases, particularly in tropical regions. Unlike Mycobacterium tuberculosis, which is well-established and systematically managed, NTM infections have become more prevalent in tropical climates but remain underrecognized in many areas. While the incidence of tuberculosis (TB) has shown a decline globally, NTM infections have seen a marked increase, highlighting a shifting trend in mycobacterial diseases worldwide.

METHODS

Study Sites



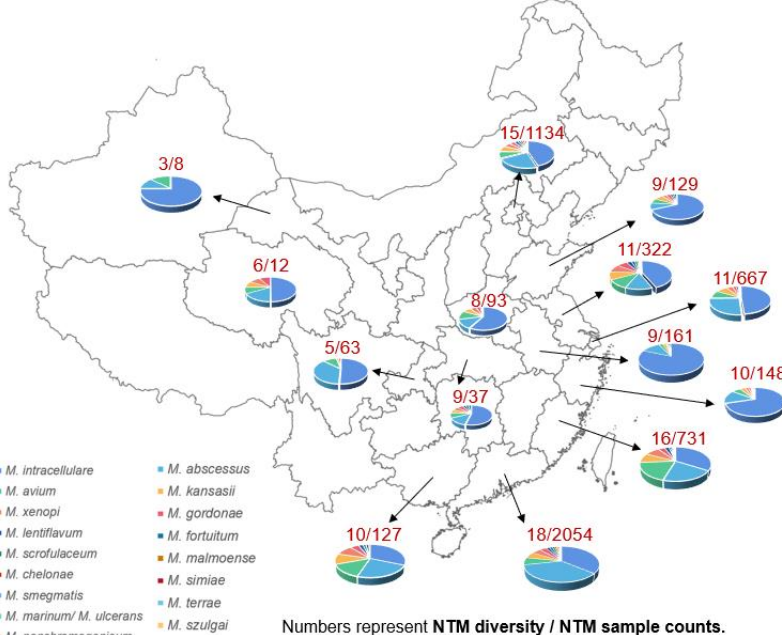
From Jan to Jun 2025, **34,341** clinical specimens were collected from 19 hospitals across 14 provinces in China

MeltArray Platform



RESULTS & DISCUSSION

- NTM species are broadly distributed across China, yet their prevalence patterns vary regionally.
- NTM Diversity correlates with geography and urbanization.
 - Coastal and large cities show richer NTM spectra
 - Western and inland provinces display limited diversity.
- Major NTM species (e.g., *M. intracellulare*, *M. abscessus*, *M. avium*) dominate nationwide.



Numbers represent NTM diversity / NTM sample counts.

Figure 1. The Diversity of NTMs in China

- MTBC remains dominant
- NTM constitutes a significant proportion: Overall NTM positivity is about 17% of all samples and **34.58%** of positive cases; the major causative NTM species accounted for 30% of positive cases.
- Low-pathogenicity and rare species are also detected.

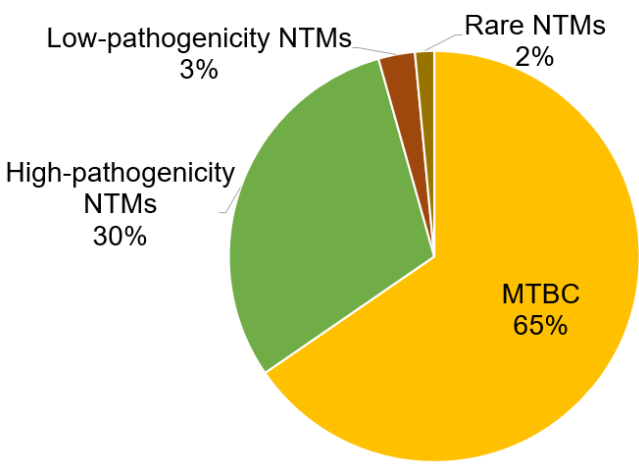


Figure 2. Distribution of myco-positive cases

- M. intracellulare* and *M. abscessus* are the most common pathogenic NTMs in China.
- 18/19 species detected → broad NTM diversity.

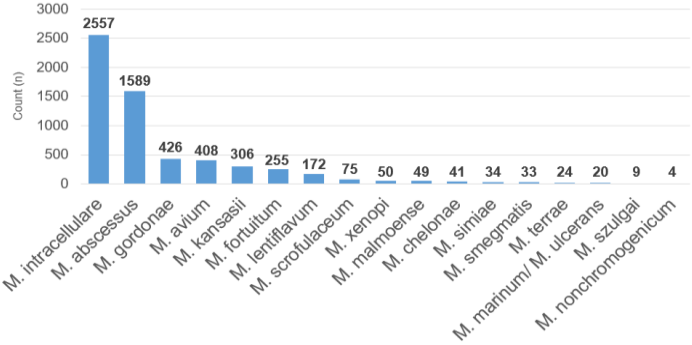


Figure 3. Distribution of NTM Species (6,052 / 34,341)

- Inland regions: higher TB incidence.
- Coastal regions: higher NTM incidence.

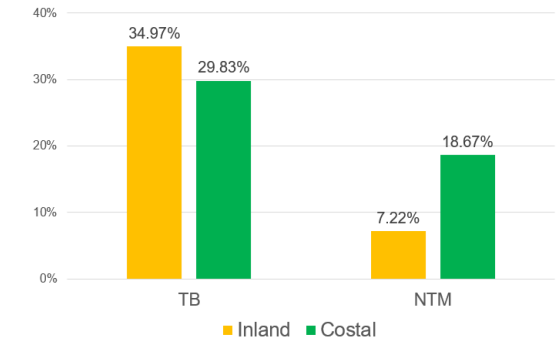


Figure 4. Geographic Distribution of TB and NTM Incidence (Inland vs. Coastal)

CONCLUSION

NTM diversity in China shows significant geographic variation. Major species such as *M. intracellulare*, *M. abscessus*, and *M. avium* are widespread, while rarer species are more common in regions with higher diversity. Coastal areas, particularly urban regions, have greater NTM diversity compared to inland areas. Pathogenicity varies by species, with some requiring aggressive treatment, while others may not. Accurate species identification, facilitated by rapid and cost-effective multiplex PCR, is critical for effective diagnosis and treatment.



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CONTACT: Li Qingge, PhD, Tel. 86-0592-2187363; Fax. 86-0592-2187363; Email: qgli@xmu.edu.cn