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Leiden

The Netherlands

Exploring host and pathogen biomarkers for leprosy

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Citation

Tio Coma, M. (2021, October 28). *Exploring host and pathogen biomarkers for leprosy*. Retrieved from <https://hdl.handle.net/1887/3229676>

Version: Publisher's Version

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Stellingen behorende bij het proefschrift getiteld "Exploring host and pathogen biomarkers for leprosy"

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1. *Mycobacterium leprae* is present in asymptomatic contacts of leprosy patients fueling the concept that these individuals contribute to the current intensity of transmission and emphasizing the importance of sensitive and specific tools allowing post-exposure prophylaxis targeted at *M. leprae*-infected or -colonized individuals (this thesis).
2. Intraindividual differences are observed between the *M. leprae* strains obtained from nasal swabs and slit skin smears suggesting *M. leprae* mixed colonization/infection or in-host evolution (this thesis).
3. *M. leprae* DNA can be detected in soil near human and animal sources, suggesting that environmental sources may represent (temporary) reservoirs for *M. leprae* (this thesis).
4. The RISK4LEP RNA signature predicts development of (BT) leprosy up to 61 months before clinical diagnosis. This signature, if validated in different populations, can be applied in interventions for targeted preventive treatment and reduction of *M. leprae* transmission among contacts (this thesis).
5. The future challenge that research in transcriptomic biomarkers faces is the evaluation and translation of transcriptomic signatures into point of care tests that can be applied by clinicians in the field.
6. The low mutation rate of *M. leprae* genome enables the study of ancient transmission routes and ultimately facilitates the identification of the origin of leprosy.
7. Actions or interventions to reduce *M. leprae* transmission should not only evaluate the human healthcare domain, One Health approaches need to be considered as transmission from other animal or environmental reservoirs may partly contribute to the resurgence of leprosy.
8. Leprosy can be treated and cured while leading a completely normal life, however, the challenge has remained unchanged for decades and is one of logistics and infrastructure, of determination and dedication, of joining hands and not letting go until the goal of ensuring that no further lives are devastated by this disease is achieved (modified from World Health Organization, *The Final Push Strategy to Eliminate Leprosy as a Public Health Problem*, 2003).
9. Most of us don't believe the sky is falling until a chunk of it falls on us, we need to act sooner (modified from Margaret Atwood, *The testaments*, 2019).