

VU Research Portal

A step towards the molecular detection of life on Mars

Oliveira Lebre Direito, M.S.

2012

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Oliveira Lebre Direito, M. S. (2012). *A step towards the molecular detection of life on Mars*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Table of contents

	Page
Chapter 1 Introduction	9
Chapter 2 A wide variety of putative extremophiles and large beta-diversity at the Mars Desert Research Station (Utah) - Mars surface analogue	33
Chapter 3 Sensitive life detection strategies for low-biomass environments: optimizing extraction of nucleic acids adsorbing to terrestrial and Mars analogue minerals	67
Chapter 4 Minerals and microbial communities: an <i>in situ</i> microcosm experiment in an iron reducing aquifer - Mars subsurface analogue	99
Chapter 5 Systematic evaluation of bias in microbial community profiles induced by whole genome amplification	131
Chapter 6 General discussion	165
References	179
Supplementary material	221
English summary	223
Dutch summary (Samenvatting)	227
Acknowledgements	233
<i>Curriculum vitae</i>	237