

Technology Offer

Specific detection of subspecies of *Clavibacter michiganensis*

Reference Number: TO 01-00301



A Company of the
Life-Science Foundation
for the Promotion of
Science and Research

Challenge

The subspecies of the bacteria *Clavibacter michiganensis* are pathogens for agricultural crop, such as tomatoes and potatoes. They cause serious disease within their hosts, which cannot be combated with chemicals. Due to the serious threat of occurring infection within a farm, the diseases must be notified to governmental offices who normally followed by imposition of strict means (tests, quarantine up to zero tolerance rating for exports). The pathogens are difficult to detect in soil and weakly infected plants, because the bacteria grow very slowly and are present in very low numbers.

Sensitive and reliable tests for the concurrent detection of all subspecies of *Clavibacter michiganensis* are needed to reduce the loss of harvests and to better adapt the regulations.



© AAC - Saint-Jean-sur-Richelieu

Tomato with tomato cancer
Source: Ministère de l'Agriculture,
des Pêcheries et de
L'Alimentation, Quebec, Canada

Technology

The invention provides oligonucleotides for the detection, differentiation, and absolute quantification of pathogenic subspecies of *Clavibacter michiganensis*. The invention allows an easy and quick detection of such bacteria by real-time TaqMan polymerase chain reaction (PCR).

The detectable subspecies are:

- *Clavibacter michiganensis* subsp. *sepedonicus*
- *Clavibacter michiganensis* subsp. *michiganensis*
- *Clavibacter michiganensis* subsp. *nebraskensis*
- *Clavibacter michiganensis* subsp. *insidiosus*
- *Clavibacter michiganensis* subsp. *tessellarius*

Commercial Benefit and Opportunity

The oligonucleotides disclosed in the invention may be used for differentiation and quantification for the diseases below, performed in one single PCR run with a unique mastermix using different fluorescent dyes for each probe:

- bacterial ring rot disease of potato
- bacterial wilt of lucerne
- tomato cancer
- bacterial mosaic of wheat

The technology is offered for in-licensing (exclusive or non-exclusive); further cooperation is desired.

Developmental Status

The proof of concept has been shown and the test system has been validated.

Patent Situation

A German patent has been granted (DE10124792).

Further Reading

Bach et al. (2003), J. Microbiol. Methods 52, 85-91.

Berlin
Braunschweig
Hamburg
Hanover
Munich
Neuherberg

Ascenion GmbH
Herzogstraße 64
D-80803 Munich
T +49 (0) 89 31 88 14 - 0
F +49 (0) 89 31 88 14 - 20
info@ascenion.de
www.ascenion.de