

Omya RD-Microbiology Service Center

Klaus Sütterlin

Omya Development AG

4665 Oftringen / Switzerland

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Project RASOS

Shortcut: Rasen-SOS

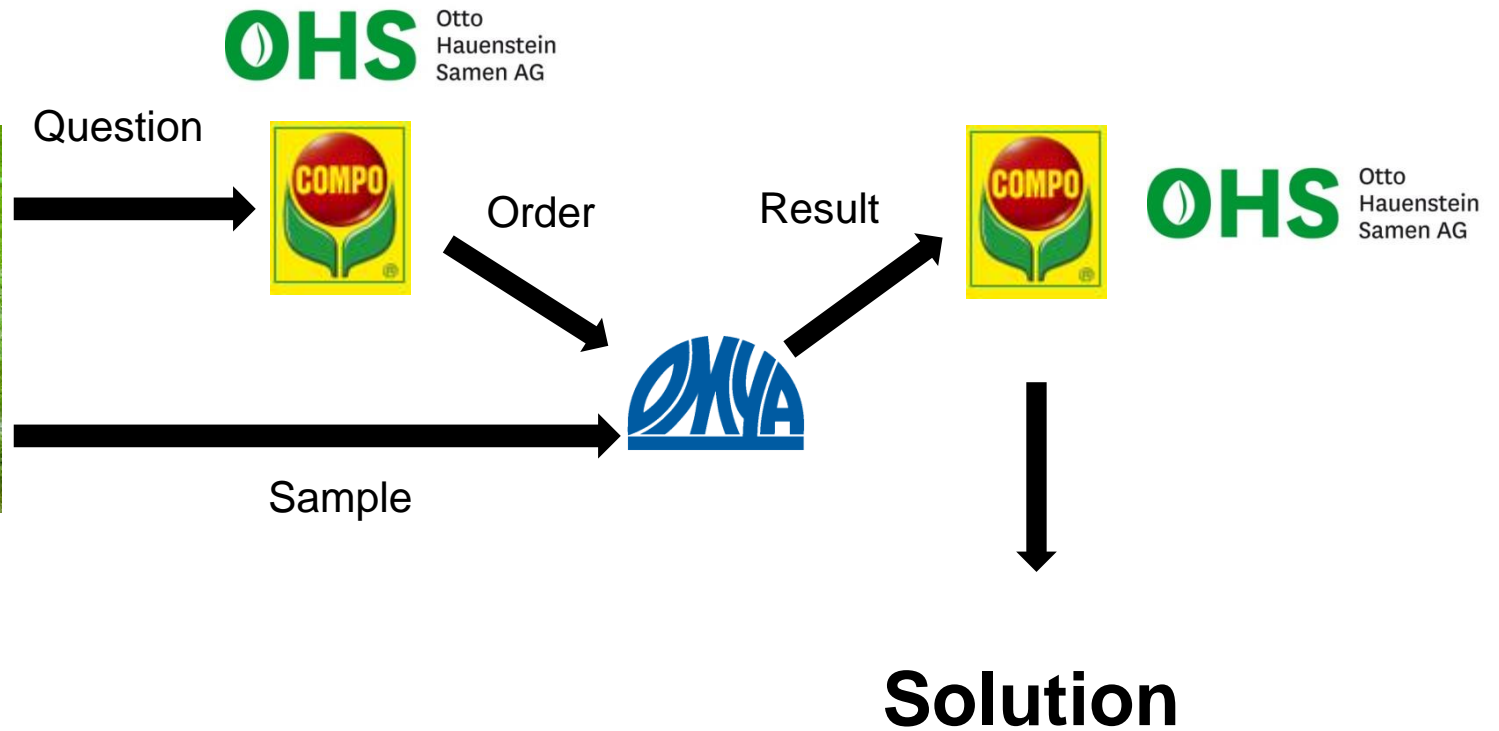


Cooperation with Compo, European Market Leader
for turf seeds,
soils, nutrition and plant protection agents.



Compo Expert provides service all around turf
for sport arena like
soccer or golf and offers
further education for greenkeeper.

Customer Problem:



23.01.2014

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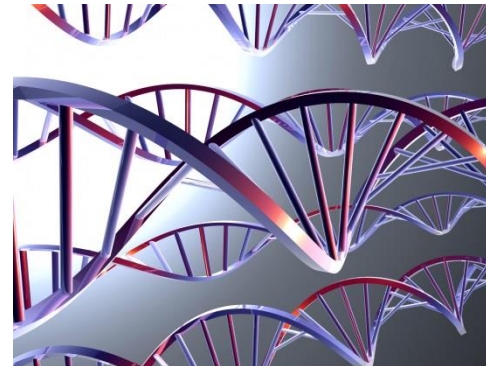


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1. Receipt of sample:



2. Isolation of total microbial DNA from turf/soil sample



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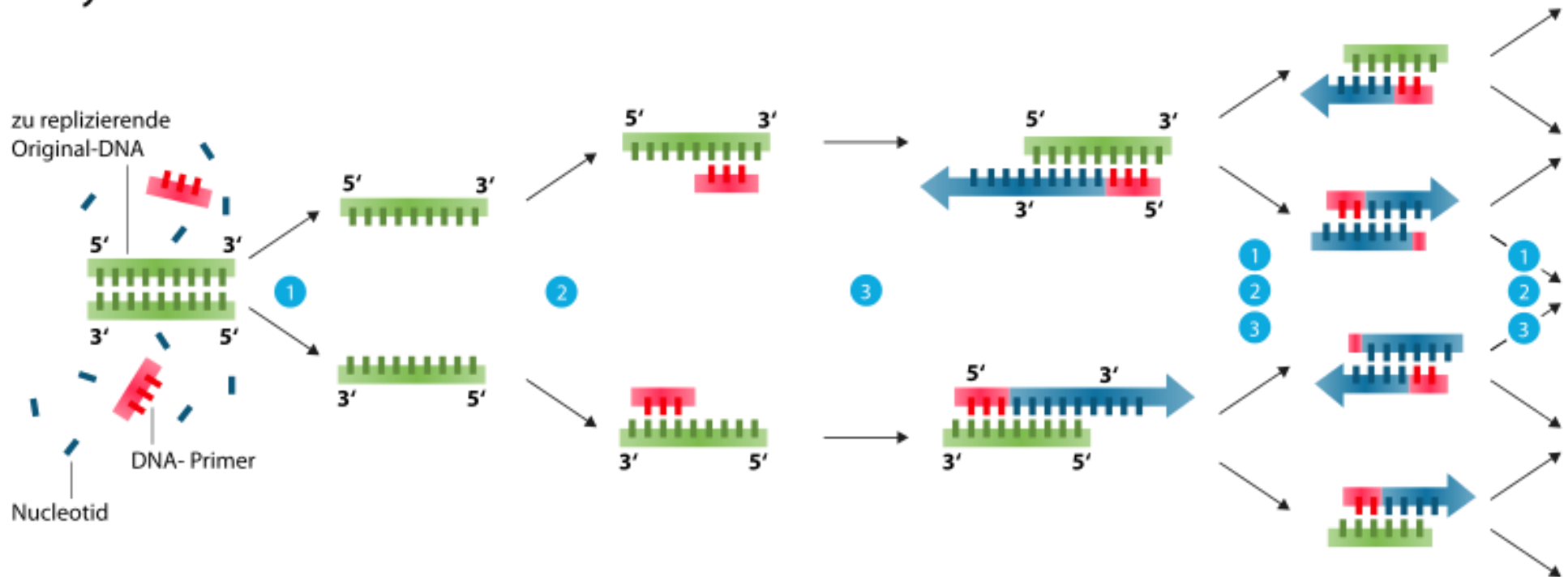
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3. Amplification of total microbial DNA by PCR

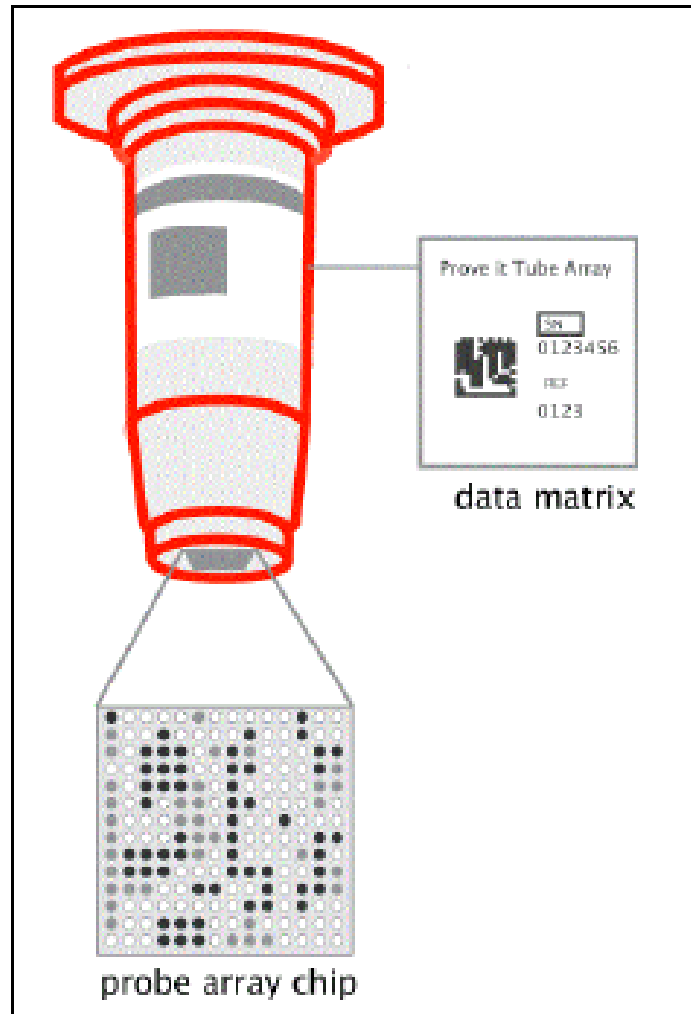
Polymerasekettenreaktion - PCR



- 1 **Denaturierung** (Schmelzen) bei ca. 96°C
- 2 **Primerhybridisierung** (Anlagerung) bei ca. 68°C
- 3 **Elongation** (Verlängerung) bei ca. 72 °C

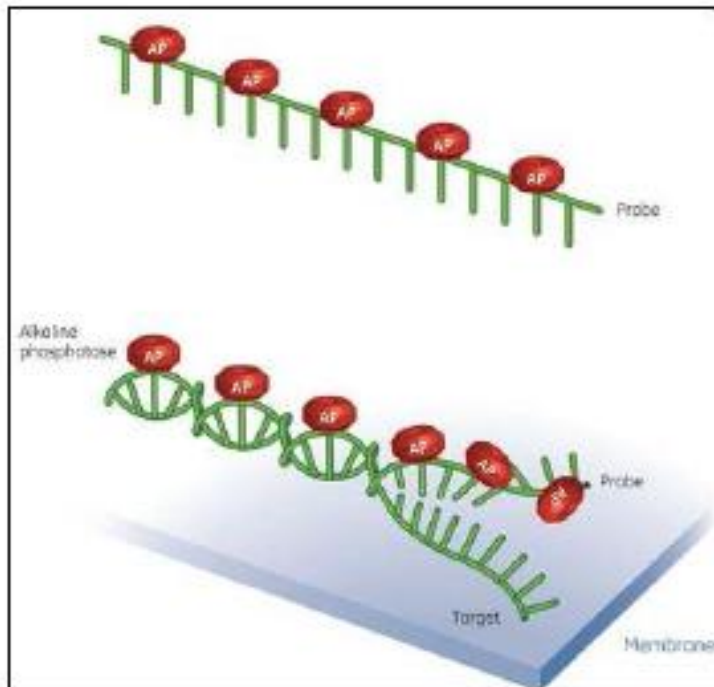


ArrayTube

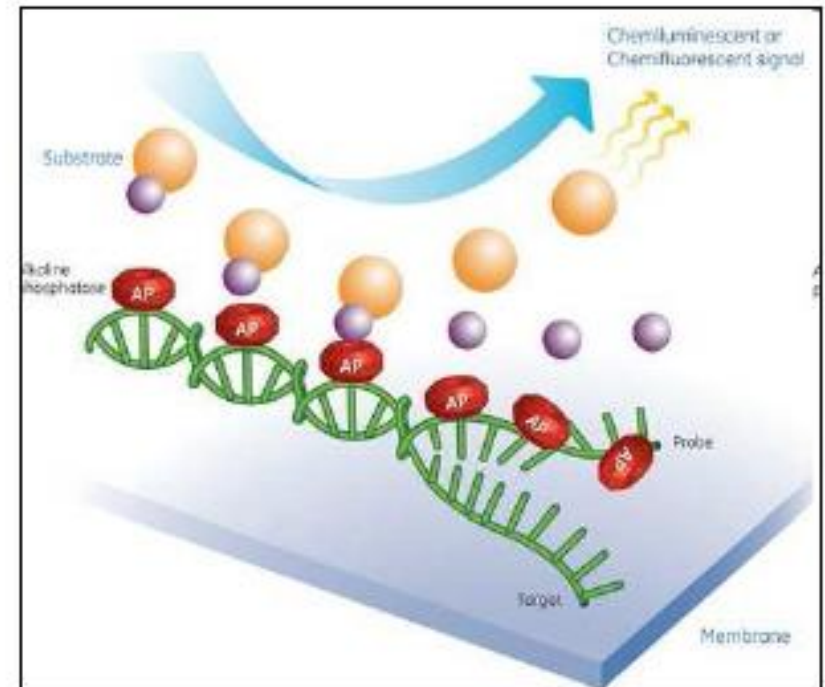


Hybridisation system

Probe labelling and hybridisation

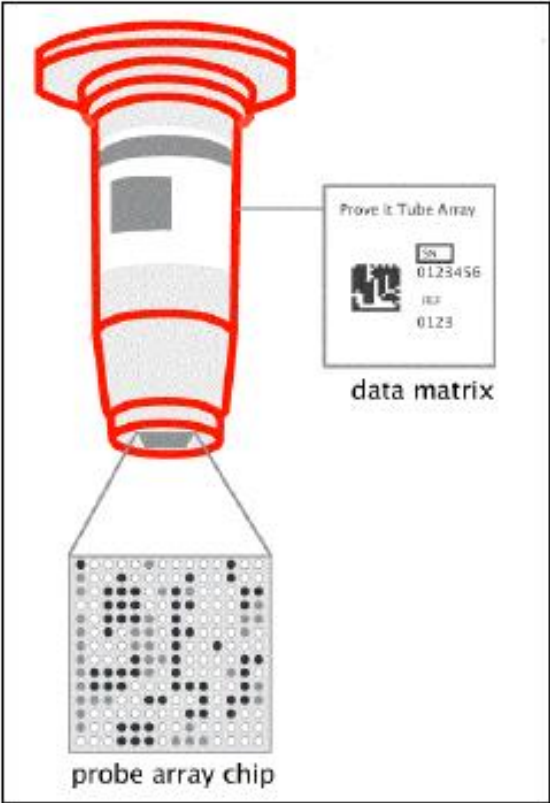


Detection



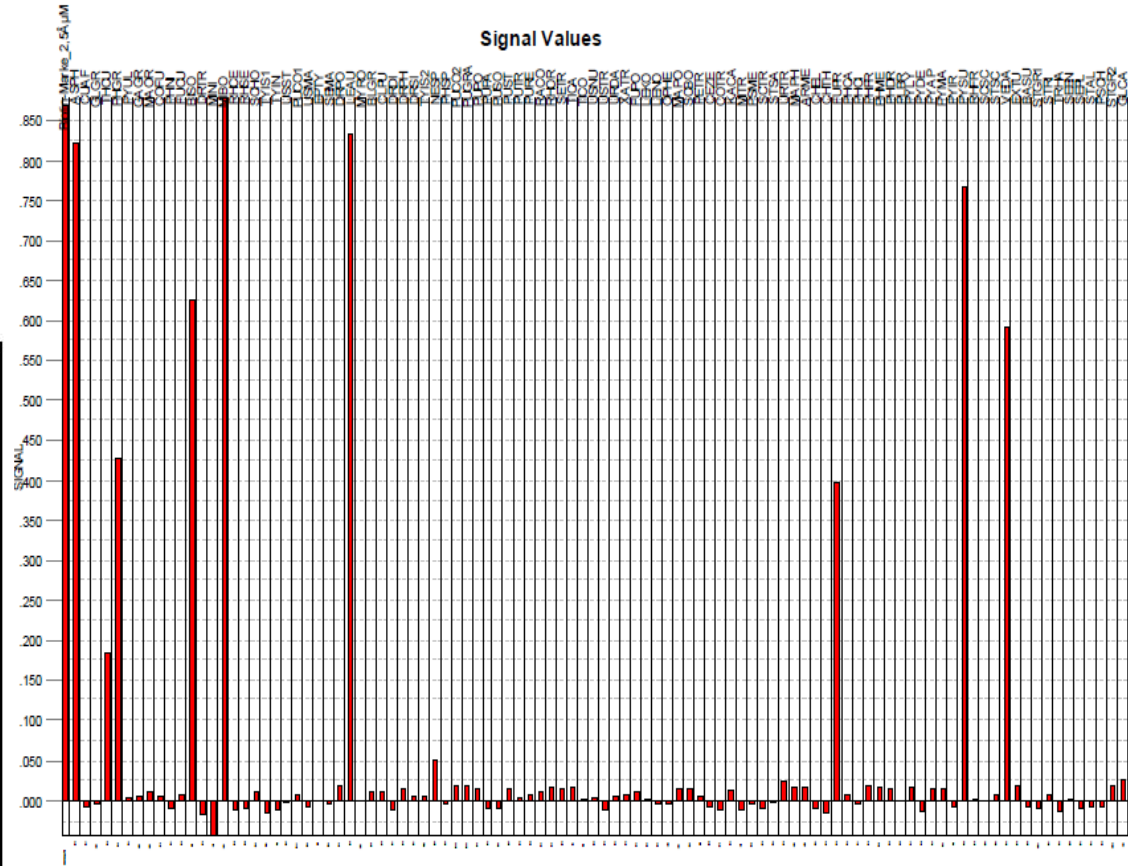
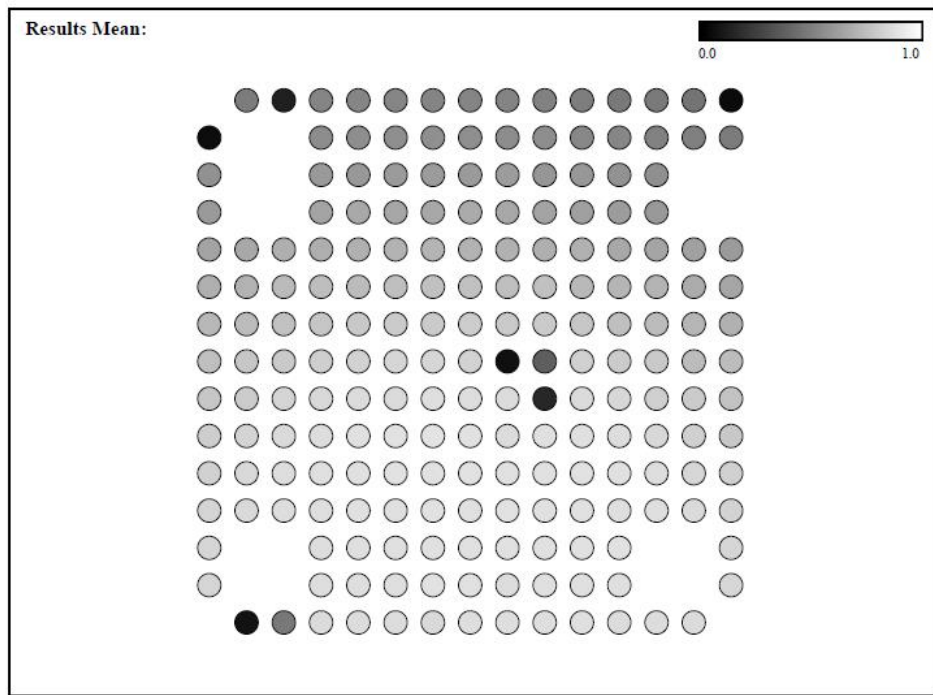
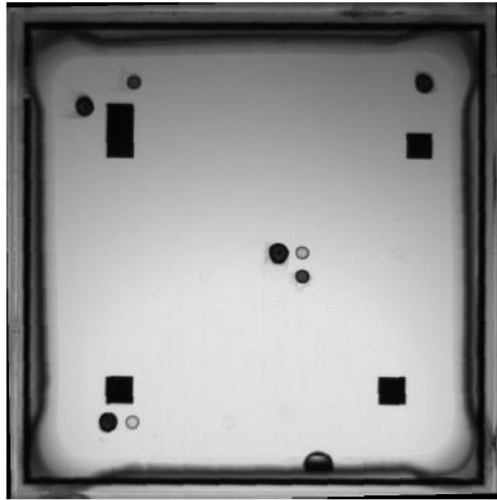
ArrayTube system components

ArrayTube



ArrayTube Reader





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Analysis Report

Customer: Dr. F. Lord, Compo Samples: 1 sample of grass + soil
 Sample receipt: 20.12.2013
 Projekt-No.: DL001.14

Conclusion

Sample was positive for presence of *Verticillium dahliae*.

Summary

Sample: 1 sample of soil and turf grass from Zwickau was delivered in person by F. Lord for analysis for pathogenic fungi by RASOS biotechnology.

Results

Table 1. Interpretation of signal intensities (Figure 1).

Sample	Test positive ¹	Signal intensity
Zwickau	<i>Verticillium dahliae</i>	0.742

¹ Signal intensities >0.05. Putative signals for *Ascochyta phleina* and *Leptosphaerulina australis* are considered false positive. Cross-hybridization between closely related species cannot be excluded.

Advantage:

**Screening of 90 phytopathogen
Microorganism
within
1 workday**



Extract of 90 Micro-organisms

DNA	PH	Ascochyta phleina	HPLC	0,02 µmol	CTGGTGTGGACTCGCCTTAAAC
DNA	CUAF	Curvularia affinis	HPLC	0,02 µmol	GCAAGGCTGGAGTATTTTATACCCT
DNA	GLGR	Glomerella graminicola	HPLC	0,02 µmol	GTTAGGGGGTCCCCTCCTCCGG
DNA	THCU	Thanatephorus cucumeris	HPLC	0,02 µmol	AGCTGGATCTCAGTGTATGCTTGG
DNA	PHGR	Pythium graminicola	HPLC	0,02 µmol	CTATACTCCGAGAACGAAAGTTTTGG
DNA	PYUL	Pythium ultimum	HPLC	0,02 µmol	CTGTGTAGTCAGGGATGGAATGTGC
DNA	GAGR	Gaeumannomyces graminis	HPLC	0,02 µmol	AACGCGCTTCGTTCCGAGGGCTT
DNA	MAOR	Marasmius oreades	HPLC	0,02 µmol	TGCTGGCTCTTAGAGTCCGGCTC
DNA	COFU	Corticium fuciforme	HPLC	0,02 µmol	GCGCAGCTATTAGATCTACGGGTG
DNA	PHNI	Phytophthora nicotianae	HPLC	0,02 µmol	CCGTACATTAACCTTGACTTTCTTCC
DNA	FUCU	Fusarium culmorum	HPLC	0,02 µmol	CTTGGTGTGGGAGCTGCAGTCC
DNA	BISO	Bipolaris sorokiniana	HPLC	0,02 µmol	GCACATATTTGCGCTTTGTATCAGG
DNA	MINI	Microdochium nivale	HPLC	0,02 µmol	CGCCGGTGGACTACCTAAAACCTCT
DNA	MIBO	Microdochium bolleyi	HPLC	0,02 µmol	GGCCAGACGACAGCCATAAACCC
DNA	RHCE	Rhizoctonia cerealis	HPLC	0,02 µmol	CTGGCTTTTGTGGATTTGGAGGT
DNA	RHSE	Rhynchosporium secalis	HPLC	0,02 µmol	TCGGCGCCCCAGGAGAAATCCT
DNA	SCHO	Sclerotinia homoeocarpa	HPLC	0,02 µmol	AACACATACCTCTCGTTACAGGGTC
DNA	TYIS1	Typhula ishikariensis	HPLC	0,02 µmol	ATTAGCTGGAACTCTTGTGGACC
DNA	TYIN	Typhula incarnate	HPLC	0,02 µmol	GTCCAATGTAGGGCGAGCGTAA
DNA	USST	Ustilago striiformis	HPLC	0,02 µmol	TTTGAAGAGTTGGCGGATCGGTA
DNA	PUCO1	Puccinia coronata	HPLC	0,02 µmol	CGACCCCTTTTAAITTCACCGAAC
DNA	SEMA	Septoria macropoda	HPLC	0,02 µmol	TATTGGCGTCCGCGGGGGA
DNA	DRPO	Drechslera poae	HPLC	0,02 µmol	TTTTGCGCTTTGTCCAGTTGCGG
DNA	LEAU	Leptosphaerulina australis	HPLC	0,02 µmol	ACATCTCGCGCTTTGCATTCAGAA
DNA	MYRO	Myrothecium roridum	HPLC	0,02 µmol	TCGGGCAACGGAACAGGCGC
DNA	BLGR	Blumeria graminis	HPLC	0,02 µmol	TCCGCCAGGGGAARACCAAACCTCT
DNA	CLPU	Claviceps purpurea	HPLC	0,02 µmol	ACTTATACCCAAAACGTTGCCCTCG
DNA	DRDI	Drechslera dictyoides	HPLC	0,02 µmol	CCGTGGCTTTGTGCCACGCC
DNA	DRPH	Drechslera phlei	HPLC	0,02 µmol	ATTGGGGCCTTTGTGCCACCCC
DNA	DRSI	Drechslera siccans	HPLC	0,02 µmol	GATTGCTCGCCCCCTCTGG
DNA	DRTR	Drechslera tritici-repentis	HPLC	0,02 µmol	GACCTTATCAAACCTTTTTTCAGTT
DNA	EPTY	Epichloe typhina	HPLC	0,02 µmol	GCTGTTGGGGACCGGCTACCCCG
DNA	NESP	Neotophodium sp.	HPLC	0,02 µmol	GTTGCCTCGGCGGGCACGGC
DNA	PHSP	Phyllachora vulgata	HPLC	0,02 µmol	CGCAAACGGGAGCCGCGGCGCGG
DNA	PUCO2	Puccinia coronate	HPLC	0,02 µmol	CTAAAAACCCCTCATAACCTTTTTT
DNA	PUGRA	Puccinia graminis	HPLC	0,02 µmol	CTCCTAAAACCAAATCTTATTTTTAAG
DNA	PUPO	Puccinia poae-nemorialis	HPLC	0,02 µmol	CAATACTGCCATCTTGTTTTTGAAGG
DNA	PUPA	Puccinia poarum	HPLC	0,02 µmol	ATACTTGCCATCTTTTTGGAAGG
DNA	PUSO	Puccinia sorghi	HPLC	0,02 µmol	CAACCTTTTTGAGTATCTAATGAT
DNA	PUST	Puccinia striiformis	HPLC	0,02 µmol	ATACTGCCATCTTATTKAAGGGAGAC
DNA	PUTR	Puccinia triticina	HPLC	0,02 µmol	CAGGGCTATCCCCCTGCCAGG
DNA	PURE	Puccinia recondita	HPLC	0,02 µmol	CCTAAAAACCCCTTATCA
DNA	RACO	Ramularia collo-cygni	HPLC	0,02 µmol	TGAACGCATCATGTTGCTTCGGG
DNA	RHOR	Rhynchosporium orthosporum	HPLC	0,02 µmol	CTCGTGAAACACATGAAGTCTGAG
DNA	SETR	Septoria tritici	HPLC	0,02 µmol	GCGGAGTTCAGAGCCCTCAC
DNA	TICA	Tilletia caries	HPLC	0,02 µmol	CTACGGAGGGGTGGCTGCGTTG
DNA	TICO	Tilletia controversa	HPLC	0,02 µmol	CTACGGAGGGGTGGCTGCGTTG
DNA	TYIS2	Typhula ishikariensis	HPLC	0,02 µmol	ATTAGCTGGAACTCTTGTGGACC
DNA	USMA	Ustilago maydis	HPLC	0,02 µmol	CTTTTTCTTTTTGGAAAAGGTTGACG
DNA	USNU	Ustilago nuda	HPLC	0,02 µmol	ACAGACAAATTTATGAAACACTTTTT
DNA	USTR	Ustilago tritici	HPLC	0,02 µmol	ACGGACAAATTTATTTAACACTTTTTG
DNA	URDA	Uromyces dactylidis	HPLC	0,02 µmol	CTCATTAACAAATTTTTCTTATAAAGATTG
DNA	XATR	Xanthomonas translucens	HPLC	0,02 µmol	GAGTGTGGTAGAGGATGGCGGAA
DNA	FUPO	Fusarium poae	HPLC	0,02 µmol	CCATTGCGTAGTAGTAAACCC
DNA	LEKO	Leptosphaeria korrae	HPLC	0,02 µmol	ACACCCCATTTGAACCTATTTTYYAA
DNA	LENO	Ophiosphaerella narmari	HPLC	0,02 µmol	CACCAAACAGCTTGGGAAACCTT
DNA	OPHE	Ophiosphaerella herpotricha	HPLC	0,02 µmol	CCAGTTATATAGGCACCCAATAAGCC
DNA	MAPO	Magnaporthe poae	HPLC	0,02 µmol	CTCTGAGTACGAAAAGAACCTGAAA
DNA	SCBO	Sclerotinia borealis	HPLC	0,02 µmol	AGTCCATGTCCGCAATGGCAGG
DNA	PETR	Peronospora trifoliorum	HPLC	0,02 µmol	GTCACGTGGTCTTGGTTTTGAA
DNA	CEZE	Cercospora zebrina	HPLC	0,02 µmol	CGGAGCGGGGCCGTCGCG
DNA	KACA	Kentledgea calivora	HPLC	0,02 µmol	CATTATCGAGTTTACGCTCCATAAC
DNA	MITR	Microsphaera trifolii	HPLC	0,02 µmol	CTCGGTCTCGAGCCGCGG
DNA					CGTCGTGCTGTTCCGCAAGGAC

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Patent proposal for inovative methodology submitted by Omya

Further aims:

Commercialisation

Scientific Publication

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Thank you for listening.

**If you wish any further information, you
are cordially invited to contact us.**

Omya RD-MB
Group Microbiology
Baslerstrasse 42
CH-4665 Oftrigen

www.omya-microbiology.com
info@omya-microbiology.com

