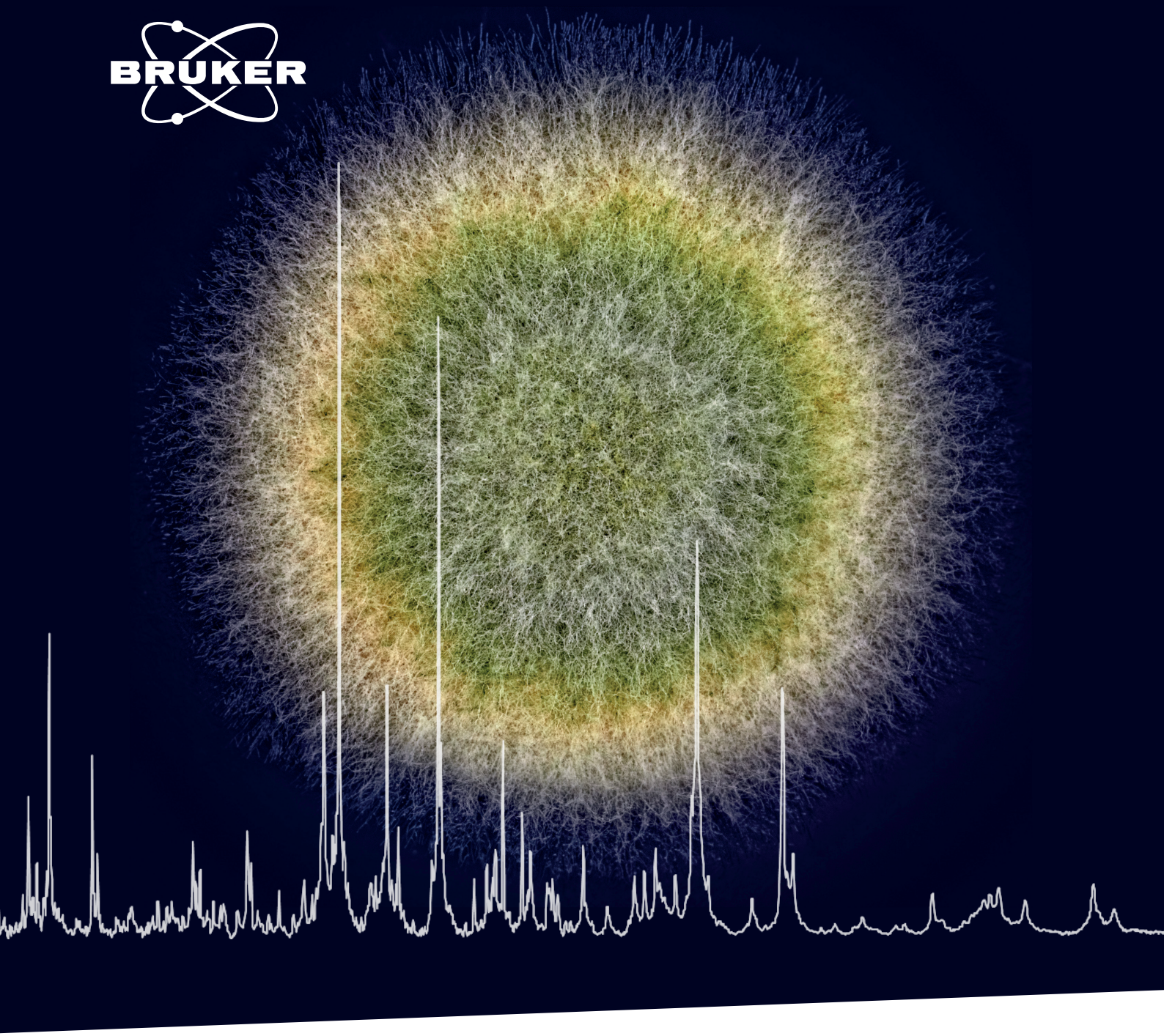


MALDI BIOTYPER®

MBT HT Filamentous Fungi Module

A mighty mold solution

Innovation with Integrity

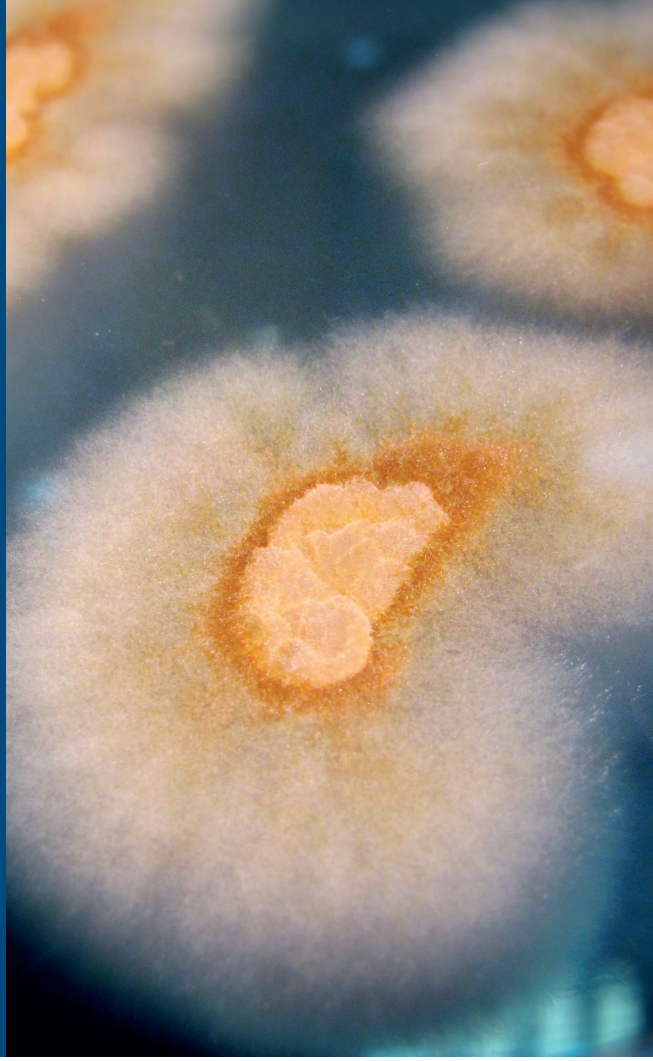
RUO

Tackle the filamentous fungi challenge

The MALDI Biotyper has revolutionized the identification of microorganisms within the past decade, setting new standards in speed, ease of use, reliability and cost-effectiveness.
But even with state-of-the-art MALDI-TOF mass spectrometry, the identification of molds and multicellular fungi still persists as one of the most challenging aspects of microbiology. This can be mainly attributed to the effects of varying culture conditions.

To facilitate the identification of these microorganisms, Bruker has developed a cultivation method supporting creation of reference spectra for the MBT HT Filamentous Fungi Module, and a standard workflow for identification.

The MBT HT Filamentous Fungi Module combines a comprehensive library of reference spectra with an optimized software module, leading to a high identification success rate.



A standardized reference library

In order to reduce the effects of culture conditions on the mass spectrum and to aid in the formation of a uniform mycelium, Bruker developed a liquid based cultivation method, standardizing the physiological status. This method has been used to create reproducible reference spectra for the MBT Filamentous Fungi Library, which can be used for identification of front mycelium harvested directly from regular agar.

To create the reference library, tubes with liquid medium have been inoculated with the fungi and placed on a rotator to incubate overnight or until enough biological material was observed.

This standardized Liquid Cultivation method prevents the germination process and the formation of spores, which, in turn, permits the creation of reproducible library entries.

As a consequence, identification of filamentous fungi by isolation of their mycelium enables fast and reliable species identification.

MBT Filamentous Fungi Library

Version 2022 covering
222 species/species groups

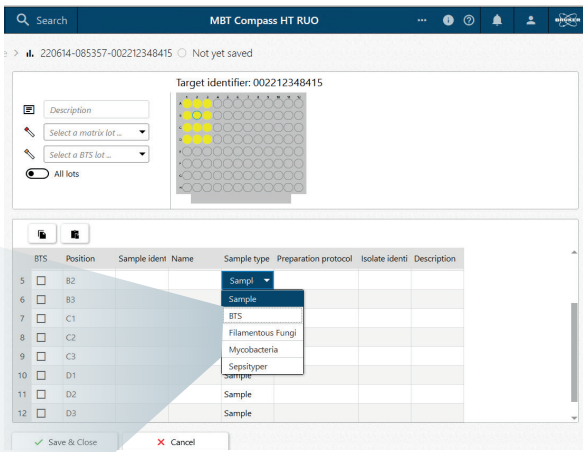
More than a library

The MBT HT Filamentous Fungi Module combines a comprehensive library with an optimized software module, including adapted thresholds for identification of filamentous fungi.

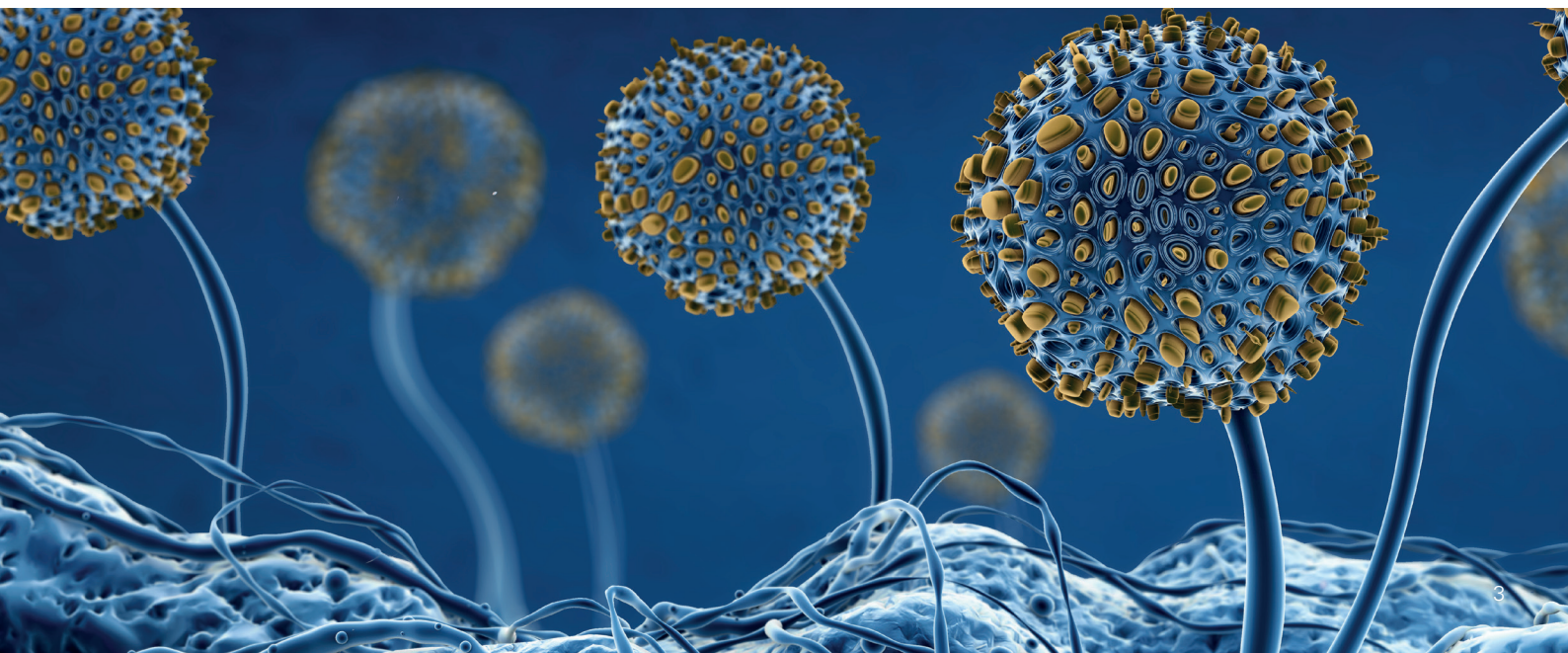
The dedicated software module triggers mass spectral acquisition using different weighting parameters than those applied for most bacteria. The optimized data acquisition and analysis contribute to a high identification success rate.

Sample
BTS
Filamentous Fungi
Mycobacteria
Sepsityper

Sample type



Easy selection of the sample type while setting up the run for optimized data acquisition and analysis



Your easy daily workflow

The result of constant developments is a tremendously improved sample preparation method, called the Mycelium Transfer (MyT) procedure. It enables the microbiologist to achieve considerably higher identification success rates for these challenging filamentous fungi samples. The formerly known "three step workflow" can now successfully be replaced for most of the filamentous fungi samples by the new MyT procedure, which is in fact a modified extended Direct Transfer (eDT).

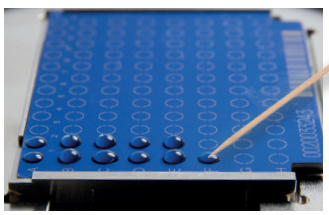
The easy MyT method can be used in most of the cases, when front mycelium is clearly visible and can be harvested easily, like in the example shown below. Hence, sample preparation is most often very similar to the straightforward and fast eDT method that is typically used for yeast.

Best results are obtained when using the disposable MBT Biotarget 96 for sample preparation. The slightly rough surface of the MBT Biotarget 96 ensures an intense homogenization and effective cell disruption of the fungal material on the MALDI target. The MBT FAST™ Shuttle can conveniently be used to dry the spots.

In general, good results can be obtained for the majority of samples using the new MyT method, with sample preparation on an MBT Biotarget 96.

The Mycelium Transfer (MyT) procedure

A wooden inoculation pick is dipped into a droplet of formic acid, applied onto an MBT Biotarget 96. **1**



Sampling of the mold's front mycelium is improved by the wet wooden inoculation pick, while also already instantly enabling reaction of the acid with the mold. **2**

The mold is subsequently smeared in the formic acid droplet on the MBT Biotarget 96, liberating proteins which are - after drying and addition of a droplet of HCCA matrix - extracted into the solvent components of the matrix. **3**

MBT FAST™ Shuttle

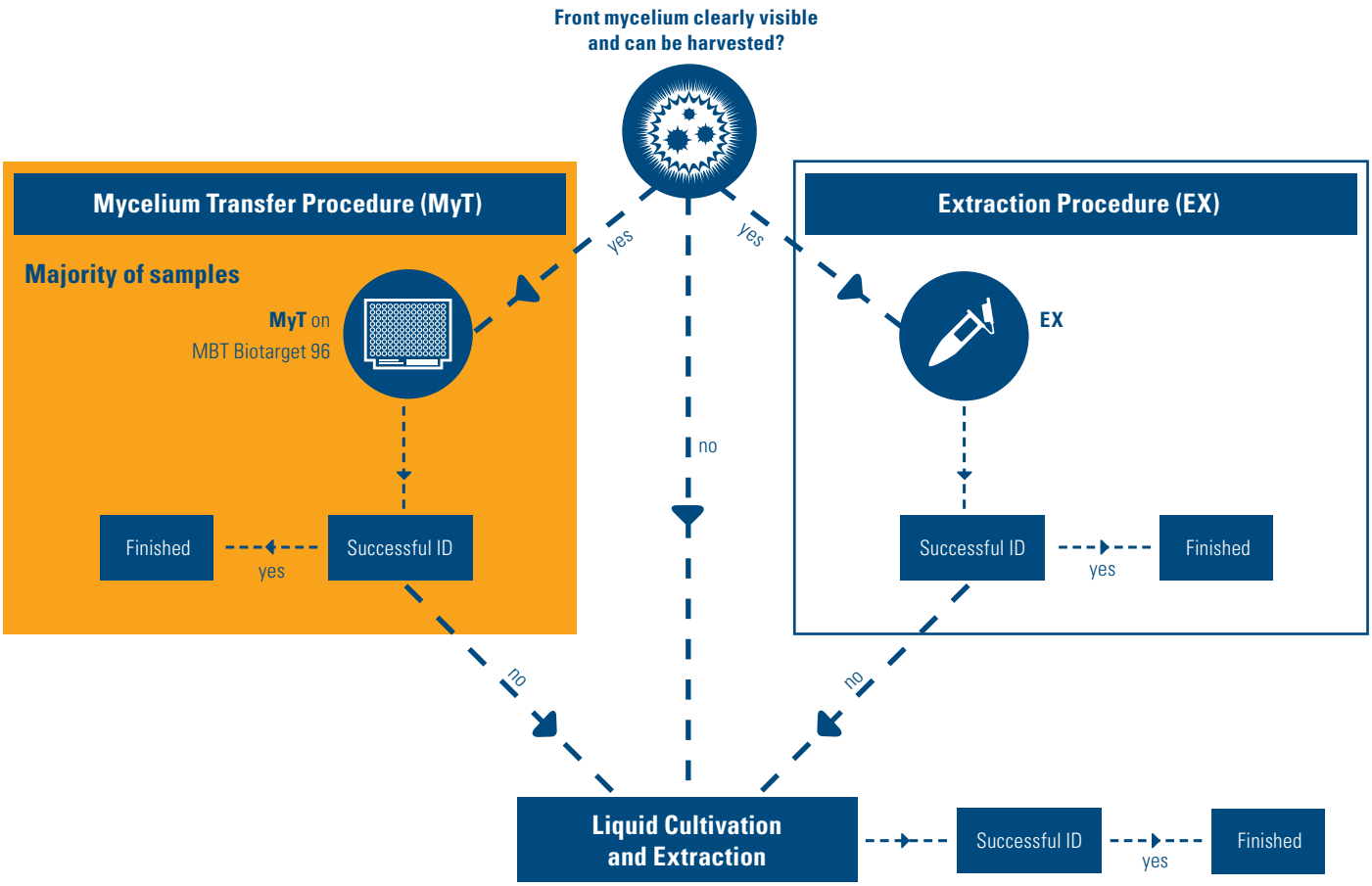
Drying of the spots under controlled conditions at elevated temperature, using the MBT FAST™ Shuttle, ensures standardized crystallization of the matrix while speeding up the drying process. **4**

Mighty analysis directly from agar

The new MyT method requires a droplet of formic acid to be spotted first on an MBT Biotarget 96, after which a wooden inoculation pick is dipped into that droplet. This action improves the subsequent sampling of the mold's front mycelium with the wet wooden inoculation pick, while also already instantly enabling reaction of the acid with the mold. When subsequently smearing the mold into the formic acid droplet on the MBT Biotarget 96, mechanical disruption happens due to the slightly rough surface of the target, favorable for liberating more proteins. After drying and addition of a droplet of matrix, these proteins are extracted into the solvent components of the matrix. Surprisingly, this extremely simple and fast MyT method has resulted in an even better identification success rate than the Extraction (EX) method, which however still can be used if users prefer that method.

The slightly more time-consuming Liquid Cultivation is only used when the MyT or EX methods do not result in a reliable identification or when easy harvesting of mold material is impossible, for example due to a strong adherence to the agar. As soon as turbidity is observed in the liquid culture, which is typically after overnight cultivation, the dedicated MBT Filamentous Fungi Extraction Procedure for liquid medium samples can be applied. Only very few samples need to be prepared following this procedure, and it is of course the method of choice for creation of home-made reference library entries.

For all sample preparation procedures, it is highly recommended to dry the spots under controlled conditions at an elevated temperature, using the MBT FAST™ Shuttle.



MBT Filamentous Fungi Library

The MBT Filamentous Fungi Library Version 2022 covers 222 species / species groups.
The library strain composition consists of culture collection strains and strains isolated from clinical and environmental specimens, provided by cooperation partners.

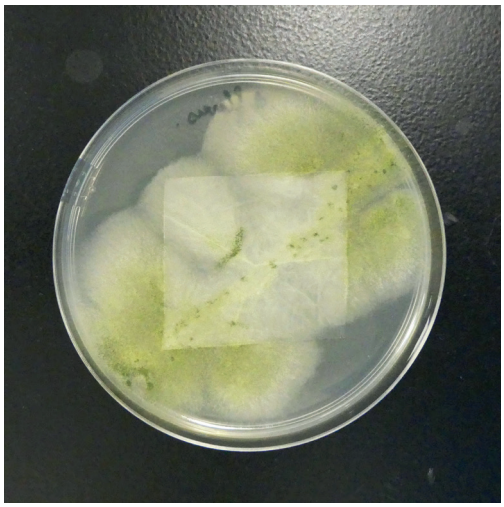
Absidia caerulea	*Arthrographis kalrae*	*Aureobasidium melanogenum_pullulans*
Absidia glauca	*Aspergillus brasiliensis*	*Beauveria bassiana*
Acaulium acremonium	*Aspergillus calidoustus*	*Boeremia exigua*
Acremonium cereale	*Aspergillus clavatus*	*Botrytis aclada*
Acremonium chrysogenum	*Aspergillus flavus_oryzae*_group	*Botrytis cinerea*
Acremonium curvulum	*Aspergillus fumigatus*	*Byssochlamys fulva*
Acremonium polychromum	*Aspergillus iizukae*	*Byssochlamys nivea*
Acremonium sclerotigenum	*Aspergillus japonicus*	*Byssochlamys spectabilis*
Actinomucor elegans	*Aspergillus lentulus*	*Chaetomium globosum*
Alternaria alternata	*Aspergillus montevidensis*	*Chaetomium* sp
Alternaria infectoria	*Aspergillus nidulans*	*Chrysosporium keratinophilum*
Alternaria rosae	*Aspergillus niger*	*Chrysosporium shanxiense*
Apophysomyces elegans	*Aspergillus ochraceus*	*Cladosporium cladosporioides*
Arthrinium arundinis	*Aspergillus parasiticus*	*Cladosporium halotolerans*
Arthrinium phaeospermum	*Aspergillus penicillioides*	*Cladosporium herbarum*
Arthroderma borellii	*Aspergillus pseudoglaucus*	*Cladosporium macrocarpum*
Arthroderma ciferrii	*Aspergillus pulvinus*	*Cladosporium sphaerospermum*
Arthroderma cuniculi	*Aspergillus ruber*	*Clonostachys rosea*
Arthroderma curreyi	*Aspergillus sclerotiorum*	*Colletotrichum gloeosporioides*
Arthroderma eboreum	*Aspergillus* sp[4]	*Coniochaeta hoffmannii*
Arthroderma flavescens	*Aspergillus sydowii*	*Coniochaeta luteorubra*
Arthroderma gertleri	*Aspergillus tamarii*	*Coniochaeta mutabilis*
Arthroderma gloriae	*Aspergillus terreus*	*Cordyceps farinosa*
Arthroderma insingulare	*Aspergillus tritici*	*Cunninghamella bertholletiae*
Arthroderma lenticulare	*Aspergillus unguis*	*Cunninghamella elegans*
Arthroderma multifidum	*Aspergillus ustus*	*Curvularia* sp[6]
Arthroderma thuringiensis	*Aspergillus versicolor*	*Dichotomopilus dolichotrichus*
Arthroderma uncinatum	*Aspergillus westerdijkiae*	*Dichotomopilus funicola*

Didymella glomerata	*Lichtheimia corymbifera*	*Nannizzia duboisii*
Didymella pomorum	*Lichtheimia ramosa*	*Nannizzia fulva*
Epicoccum nigrum	*Lomentospora prolificans*	*Nannizzia gypsea*
Epidermophyton floccosum	*Metarhizium marquandii*	*Nannizzia incurvata*
Exophiala dermatitidis	*Microascus gracilis*	*Nannizzia persicolor*
Fusarium avenaceum	*Microascus melanosporus*	*Nannizzia praecox*
*Fusarium cerealis_culmorum_*group	*Microsporum audouinii_canis*	*Neoscytalidium dimidiatum_hyalinum*
Fusarium chlamydosporum	*Monascus ruber*	*Neoscytalidium* sp
Fusarium delphinoides	*Monilinia laxa*	*Ovatospora brasiliensis*
Fusarium dimerum	*Mortierella acrotona*	*Ovatospora* sp
Fusarium equiseti	*Mortierella angusta*	*Paecilomyces laguncularіae*
Fusarium graminearum	*Mortierella gamsii*	*Paraphyton cookei*
Fusarium incarnatum	*Mortierella* sp	*Paraphyton cookiellum*
Fusarium oxysporum	*Mucor amphibiorum*	*Penicillium aurantiogriseum*
Fusarium petroliphilum	*Mucor circinelloides*	*Penicillium brevicompactum*
Fusarium poae	*Mucor genevensis*	*Penicillium camemberti*
Fusarium proliferatum	*Mucor hiemalis*	*Penicillium chrysogenum*
Fusarium solani	*Mucor indicus*	*Penicillium citreonigrum*
Fusarium sp	*Mucor lanceolatus*	*Penicillium citrinum*
Fusarium sporotrichioides	*Mucor moelleri*	*Penicillium commune*
Fusarium verticillioides	*Mucor racemosus*	*Penicillium corylophilum*
Fusicolla aquaeductuum	*Mucor* sp	*Penicillium digitatum*
Lasiodiplodia sp	*Nannizzia aenigmatica*	*Penicillium expansum*

Penicillium fellutanum	*Purpureocillium lilacinum*	*Talaromyces funiculosus*
Penicillium glabrum	*Rasamsonia argillacea*	*Talaromyces islandicus*
Penicillium italicum	*Rhizomucor miehei*	*Talaromyces macrosporus*
Penicillium menonorum	*Rhizomucor pusillus*	*Talaromyces pseudostromaticus*
Penicillium nalgiovense	*Rhizopus delemar*	*Talaromyces ruber*
Penicillium namyslowskii	*Rhizopus microsporus*	*Talaromyces rugulosus*
Penicillium olsonii	*Rhizopus oryzae*	*Talaromyces* sp
Penicillium onobense	*Rhizopus stolonifer*	*Talaromyces trachyspermus*
Penicillium oxalicum	*Sarocladium kiliense*	*Talaromyces wortmannii*
Penicillium pimiteouiense	*Sarocladium strictum*	*Thanatephorus cucumeris*
Penicillium roqueforti	*Scedosporium* sp[5]	*Trichoderma fertile*
Penicillium singorense	*Schizophyllum commune*	*Trichoderma hamatum*
Penicillium sp	*Scopulariopsis brevicaulis*	*Trichoderma harzianum*
Penicillium sp	*Scytalidium* sp	*Trichoderma longibrachiatum*
Penicillium sp[2]	*Sporothrix schenckii*	*Trichoderma orientale*
Penicillium turbatum	*Stachybotrys chartarum*	*Trichoderma polysporum*
Penicillium verrucosum	*Stachybotrys chlorohalonata*	*Trichoderma reesei*
Petriella setifera	*Stachybotrys echinata*	*Trichophyton mentagrophytes*_group
Phaeoacremonium cinereum	*Syncephalastrum monosporum*	*Trichophyton rubrum*_group
Phialemoniopsis curvata	*Syncephalastrum racemosum*	*Trichophyton terrestre*
Phoma herbarum	*Talaromyces bacillisporus*	*Trichothecium roseum*
Plectosphaerella cucumerina	*Talaromyces diversus*	*Trichurus spiralis*
Pseudogymnoascus pannorum	*Talaromyces duclauxii*	*Zopfiella karachiensis*

Boost your results by Id-Fungi Plates™

Id-Fungi Plates™ are an innovative solution allowing the selective growth of molds, yeasts and dermatophytes for MALDI-TOF analysis, on a specific culture medium with an optimized composition and pH. Its unique membrane limits the contact of the sample with the agar and makes sampling much easier, resulting in generation of better-quality MALDI-TOF spectra and an increased success rate of identified samples.



Aspergillus flavus grown on an Id-Fungi Plate™

ORDER INFORMATION

Part No. 1889531
MBT HT Filamentous Fungi Module

Consists of the MBT Filamentous Fungi Library and license for the MBT HT Filamentous Fungi software module. Prerequisite for the use of the module is the MBT Compass HT RUO software.

Part No. 1840375
MBT Biotarget 96

Part No. 1872847
MBT FAST Shuttle

For Research Use Only. Not for use in clinical diagnostic procedures.
Please contact your local representative for availability in your country.

RUO

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Id-Fungi Plates™ are manufactured by Conidia SAS – France.

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