丹娜生物
DNK

Scientific

Practicable

Innovative

Advancement

Specialist in Diagnostics of Invasive Fungal Diseases

CONTENTS

Company Profile

Dynamiker Biotechnology (Tianjin) Co., Ltd. was established in March 2014 with a registered capital of 46 million RMB. It is a high-tech enterprise and engaged in R&D, production and clinical application of early and rapid In-vitro diagnostics (IVD) of **Invasive Fungal Disease (IFD).** The headquarters of the company is located at the Sino-Singapore Tianjin Eco-city. Its R&D center is based at the Tianjin International Joint Academy of Biomedicine, Tianjin Binhai New Area.

Executive Team

The executive team of Dynamiker follows up the principle of "Technology is Life, Innovation is Power", and dedicated to serving our customers worldwide. Dr. Zeqi Zhou as a major founder of Dynamiker obtained his Ph.D. from Ohio University and postdoctoral training from Harvard Medical School. The scientific advisor team is led by Wanqing Liao, Academician of the Chinese Academy of Engineering. Currently, Dynamiker has 140 employees, a Postdoctoral Training Center and an Academician Workstation.

Technology Platform

Dyanmiker has established 6 technology platforms certified by the ISO 13485. Those are used for preparations of invasive fungal biomarkers; specific antibodies; the development and manufacturing of assays; the microbial automation; the microfluidics technology; and a R&D laboratory for breeding Asian horseshoe crabs as used for diagnostic applications. All of these platforms provide all-round support for our technology innovation and product transformation.

Product Advantage

Dynamiker has developed over 10 novel products for the early diagnosis of IFD, 5 of which were approved by CFDA, 10 CE-marked, 4 registered in Turkey and 2 in Brazil. The registered products have showed very competitive over the international competitors.

Market Strategy

In domestic, Dynamiker products entered into over 300 tertiary hospitals, such as Peking Union Medical College Hospital, Beijing 301 Military Hospital, Sir Run Run Shaw Hospital School of Medicine in Zhejiang University, Sichuan Provincial People's Hospital and First Affiliated Hospital of Sun Yat-Sen University, etc. At abroad, Dynamiker has distributors in over 20 countries such as UK, France, Italy, Spain and Brazil, etc.

Customer Service

Dynamiker is customer-oriented and greatly gained customer trusts and supports. It undertakes the responsibility for after-sales services by introducing a support and management system, composed of a clinical trial center, a distributor technical support team, Dynamiker customer service team and R&D team.

Our Vision

Looking forward, all of us are full of confidence and dynamics. Dynamiker keeps upholding our enterprise spirit of "Unity, Practicability, Openness and Innovation". We are working together to make our company as a global leader in IFD-IVD field, to build-up our products as the international brand, and to drive our IPO launched by 2020.

Invasive Fungal Disease

Invasive Fungal Disease (IFD) is a fungal infectious disease that is caused by the pathogenic fungus through invading sub-cutaneous tissues, mucous memberane, musculus and internal organs.

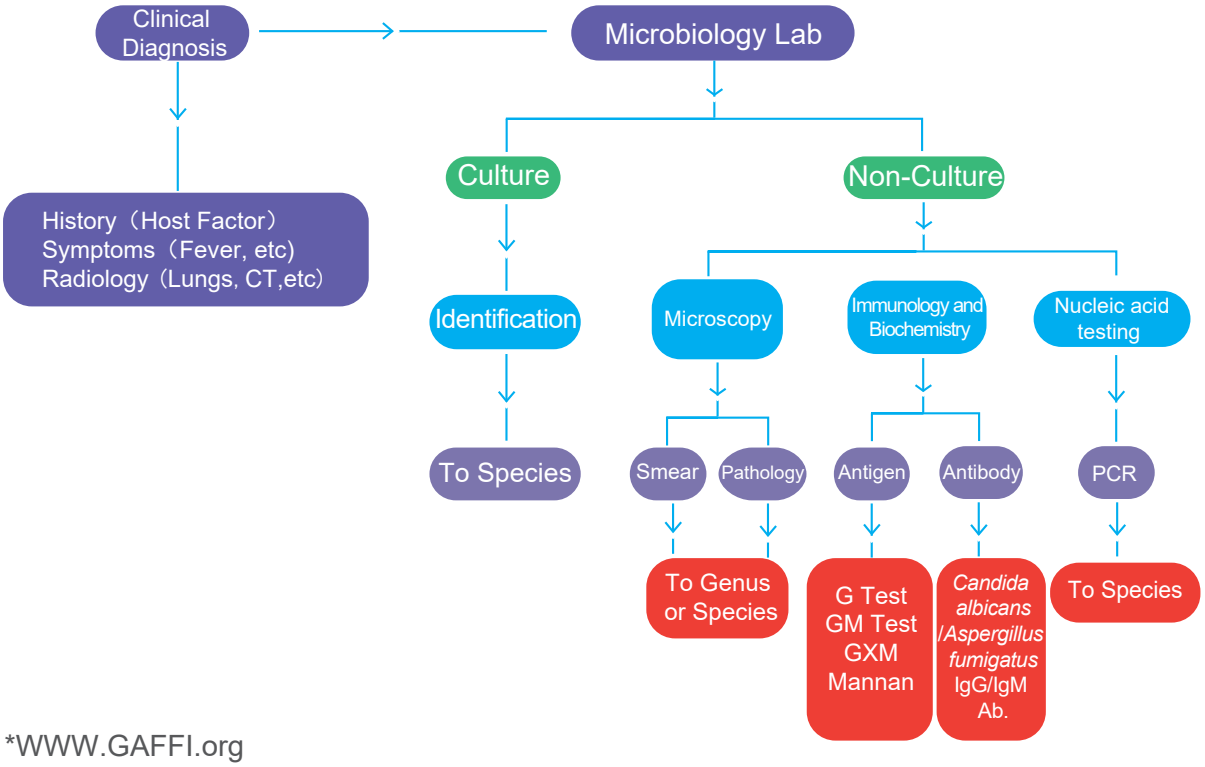
With the wide application of broad-spectrum antibiotics, corticosteroid, immunosuppressant and anti-tumor drugs, as well as the prevalence of AIDS and development of organ transplantation, the morbidity of **IFD** is increasing rapidly.

IFD is increasing every year*

- >310 million people infected by fungi annually
- >11.50 million people infected by fatal fungi annually
- >1.50 million deaths from IFD patients annually

Incasive Fungal Disease includes: Candidemia, Invasive Aspergillosis, Cryptococcal meningitis, Candidiasis, Chronic Pulmonary Aspergillosis (CPA), Pneumocystis Jiroveci Pneumonia (PJP), Allergic Bronchopulmonary Aspergillosis (ABPA) etc.

Clinical Diagnostic Procedure and Methods of IFD



*WWW.GAFFI.org

Products for Detecting Infectious Markers

CE IVD ISO 13485

Panfungal Screening

Fungus (1-3)-β-D-Glucan Assay (Colorimetric)

Catal. No.: DNK-1401-1 Specification: 96 TESTS/KIT Sample: Serum Time Duration: Within 40 minutes

Antigen Detection of Invasive Fungal Disease

Aspergillus Galactomannan Assay (ELISA)

Catal. No.: DNK-1402-1 Specification: 96 TESTS/KIT Sample: Serum /BAL Time Duration: Within 2 hours

Candida Mannan Assay (ELISA)

Catal. No.: DNK-1403-1 Specification: 96 TESTS/KIT Sample: Serum Time Duration: Within 1.5 hours

Cryptococcus neoformans Antigen Assay (ELISA)

Catal. No.: DNK-1404-1 Specification: 96 TESTS/KIT Sample: Serum /CSF Time Duration: Within 1.5 hours

NEW

Cryptococcal Antigen Lateral Flow Assay (LFA)

Catal. No.: DNK-1411-1 Specification: 40 TESTS/KIT Sample: Serum /CSF Time Duration: 15-20 mins

Antibody Detection of Invasive Fungal Disease

Aspergillus fumigatus IgM Assay (ELISA)

Catal. No.: DNK-1406-1 Specification: 96 TESTS/KIT Sample: Serum /Plasma Time Duration: Within 2.5 hours

Aspergillus fumigatus IgG Assay (ELISA)

Catal. No.: DNK-1407-1 Specification: 96 TESTS/KIT Sample: Serum /Plasma Time Duration: Within 2.5 hours

Candida albicans IgM Assay (ELISA)

Catal. No.: DNK-1408-1 Specification: 96 TESTS/KIT Sample: Serum /Plasma Time Duration: Within 2.5 hours

Candida albicans IgG Assay (ELISA)

Catal. No.: DNK-1409-1 Specification: 96 TESTS/KIT Sample: Serum /Plasma Time Duration: Within 2.5 hours

NEW

Candida IgM Lateral Flow Assay (LFA)

Catal. No.: DNK-1412-1 Specification: 40 TESTS/KIT Sample: Serum Time Duration: 5-10 mins

NEW

Candida IgG Lateral Flow Assay (LFA)

Catal. No.: DNK-1413-1 Specification: 40 TESTS/KIT Sample: Serum Time Duration: 5-10 mins

Detection of Microbiological Markers

Human *Procalcitonin* Assay (ELISA)

Catal. No.: DNK-1405-1 Specification: 96 TESTS/KIT Sample: Serum /Plasma Time Duration: Within 30 minutes

Catalogue No.: **DNK-1401-1**

Fungus (1-3)-β-D-Glucan Assay (Colorimetric)

Description

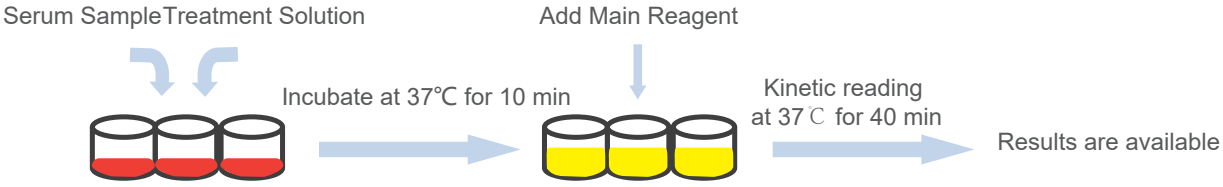
(1-3)-β-D-glucan is widely present in the fungal cell wall and acts as a specific biomarker for fungal infection. The glucan specifically binds to factor G in the Main Reagent, activating its serine protease zymogen. The cascade of reactions changes the absorbance of the substrate and quantifies the (1-3)-β-D-glucan concentration.

Fungal Cell Wall | (1-3)-β-D-glucan Triple Helix Structure | (1-3)-β-D-glucan Single Helix Structure

Advantage

- Microplate reader detection at 405nm using kinetic chromogenic method: Matches international standard
- High throughput and rapid detection: It takes only 40 minutes to complete diagnosis for 96 sets of samples
- Breakable microplate strips: Flexible and easy to use
- Samples with background color (such as jaundice, hemolysis etc.) have little effect on the diagnosis
- Small amount of patient samples needed: Only 20μl of serum for each test
- Safe and convenient experimental procedures: Reduces rate of contamination and workload

Test Procedure



Features

Specimen	Serum
Specification	96 tests
Detection Range	37.5-600pg/mL
Percent Recovery	75%-125%
Endotoxin Shielding	1.0 EU/mL
Intra-assay CV	≤10%
Inter-assay CV	≤12%

High-Risk Population

Neutropenic (Neutrophil conc. <0.5×10^9/L)

- Bone marrow and solid organ transplantation
- Anti-tumor agent and immunosuppressant

Non-neutropenic

- Long-term hormone therapy
- Long-term use of broad-spectrum antibiotics
- Intubation and other invasive treatments
- HIV infection
- Chronic obstructive pulmonary disease
- ICU inpatient

Clinical Research in Cardiff, UK.

ISHAM INTERNATIONAL SOCIETY FOR HUMAN AND ANIMAL MYCOLOGY

Medical Mycology, 2017, 0, 1–8
doi: 10.1093/mmy/myx004
Advance Access Publication Date: 0 2017
Original Article

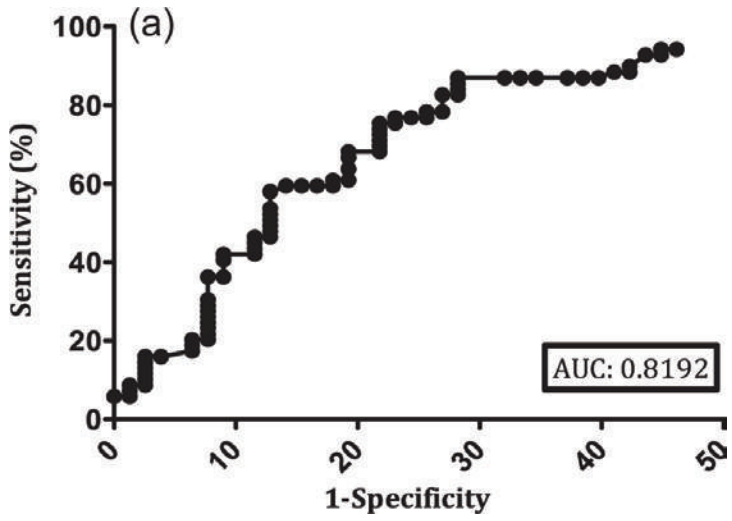
Original Article

An evaluation of the performance of the Dynamiker® Fungus (1-3)-β-D-Glucan Assay to assist in the diagnosis of invasive aspergillosis, invasive candidiasis and *Pneumocystis* pneumonia

P. Lewis White[1,*], Jessica S. Price[1], Raquel B. Posso[2] and Rosemary A. Barnes[2]

Table 2. Clinical performance of the Dynamiker® Fungus (1-3)-β-D-Glucan Assay.

Parameter (n/N; %, 95% CI)	Fungal disease IA vs NEF	IC vs NEF	PCP vs NEF	Combined Proven/ Probable IFD vs NEF	Combined Proven/ Probable/Possible IFD vs NEF
Sensitivity	17/21; 81.0, 60.0–92.3	14/15; 93.3, 70.2–98.8	3/6: 50.0, 18.8–81.2	35/43; 81.4, 67.4–90.3	38/57; 66.7, 53.7–77.5
Specificity	50/64; 78.1, 66.6–86.5	50/64; 78.1, 66.6–86.5	50/64; 78.1, 66.6–86.5	50/64; 78.1, 66.6–86.5	50/64; 78.1, 66.6–86.5
LR+tive	3.70	4.26	2.28	3.72	3.05
LR-tive	0.24	0.09	0.64	0.24	0.43
DOR	15.42	47.33	3.56	15.50	7.09



Sensitivity: 81.4%
Specificity: 78.1%
AUC: 0.8192

Catalogue No.: **DNK-1402-1**

Aspergillus Galactomannan Assay (ELISA)

Description

Galactomannan (GM) is the main polysaccharide cell wall component of *Aspergillus*. It is the first biomarker released into the bloodstream during fungal growth. Quantitative serological analysis of GM provides an important reference for the early diagnosis of invasive aspergillosis.

Aspergillus

Molecular Structure of GM

Advantage

- Quantitative detection of *Aspergillus* galactomannan
- Rapid detection of invasive aspergillosis
- Accurately reflects changes in health condition by detecting galactomannan concentration
- Competitive ELISA: Higher specificity

Features

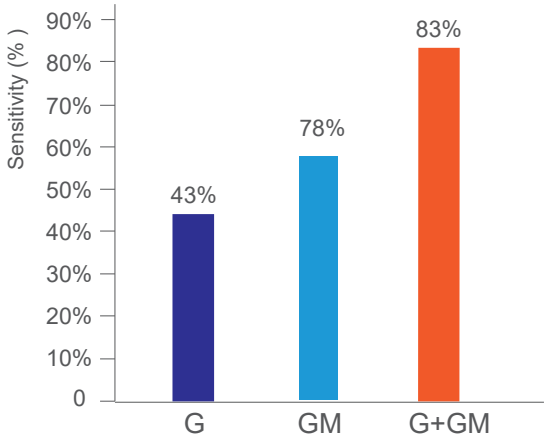
Specimen	Serum/BAL
Specification	96 tests
Detection Range	0.25-5μg/L
Percent Recovery	80-120%
Intra-assay CV	≤10%
Inter-assay CV	≤15%

High-Risk Population

1) Severe neutropenia
2) Immunodeficiency
3) Solid organ transplantation
4) ICU inpatients
5) Hematological malignancy
6) Bone marrow transplantation
7) Long-term hormone therapy
8) Chronic obstructive pulmonary disease

Advantage of G + GM Combined Detection*

1.Complete two tests using the same serum sample
2.Complete two tests in one microplate reader
3.Significant increase in sensitivity and specificity
4.Significant improvement in positive and negative predictive value



G + GM Combined Detection

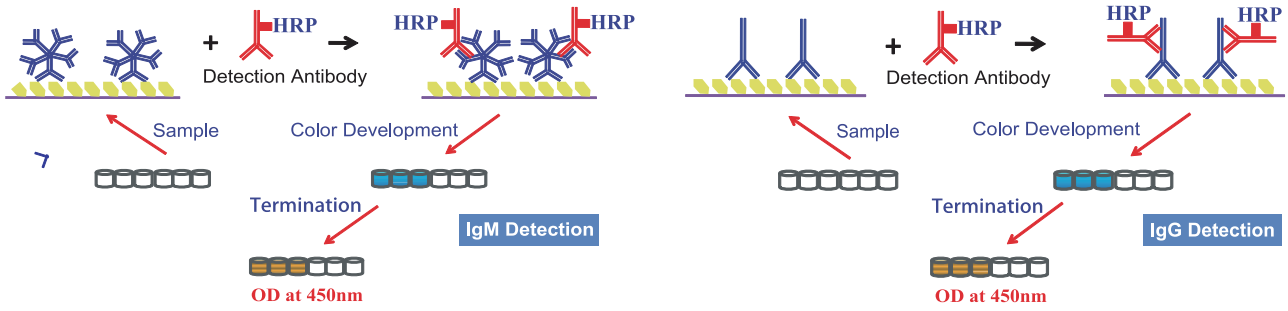
*Suhail Ahmad, Ziauddin U. Khan. Diagnostic value of DNA, (1-3)-β-D-glucan, and galactomannan detection in serum and bronchoalveolar lavage of mice experimentally infected with Aspergillus terreus[J].Diagnostic Microbiology and Infectious Disease 59 (2007) 165 – 171

Aspergillus fumigatus IgM Assay (ELISA) Catalogue No.: DNK-1406-1
Aspergillus fumigatus IgG Assay (ELISA) Catalogue No.: DNK-1407-1

Aspergillus fumigatus IgM/IgG Antibody Detection

An indirect EIA is designed for the detection of anti-galactomannan IgM/IgG antibodies in human serum or plasma. The antibodies are used as the markers for IA.

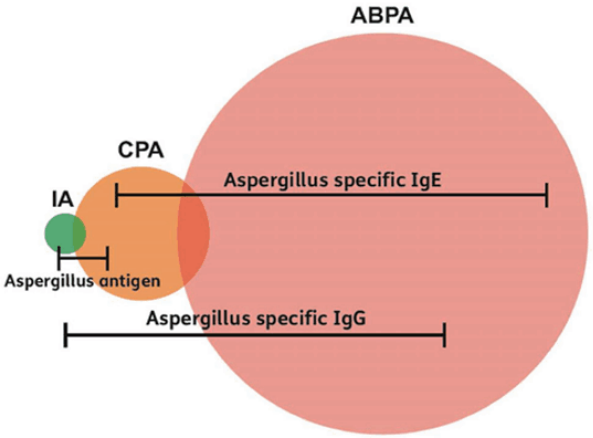
Test Principle



Features

96 tests	ELISA microplate with breakable strips
Specimen	Serum or Plasma
Analyte	Anti-galactomannan IgM/IgG antibodies
Rapid	Result within 2.5 hours
Sensitivity	>85%
Specificity	>92%

Combine Aspergillus Ag & Ab Tests



	IA	CPA	ABPA
GM	62%	23%	0%
IgG	65%	100%	65%
IgE	0%	66%	100%

Iain D. Page,Malcolm Richardson and David W. Denning. Antibody testing in aspergillosis—quo vadis? Medical Mycology, 2015, 53, 417–439

The Aspergillus IgG antibody test is the most sensitive microbiological test (strong recommendation; moderate-quality evidence).*

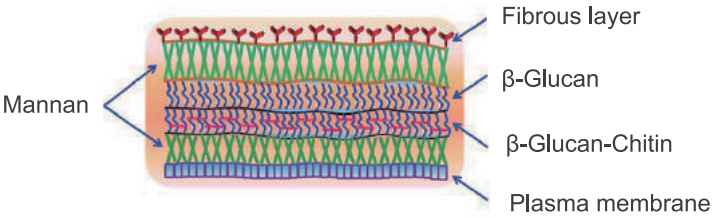
***IDSA Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America**

Catalogue No. : **DNK-1403-1**

Candida Mannan Assay (ELISA)

Candida

Candida is the most common fungal opportunistic pathogen. Invasive candidiasis (IC) accounts for approximately 50% of invasive fungal diseases (IFD). **Mannan (Mn)** is the major cell wall and antigenic component of *Candida* (30~40% of cell weight). It is considered to be a biomarker useful for the diagnosis of invasive candidiasis.



Candida Cell Wall

Molecular Structure of Mannan

Advantage

- Quantitative detection of *Candida* antigen
- Early and rapid detection of invasive candidiasis
- Reference for judging medical condition and treatment evaluation

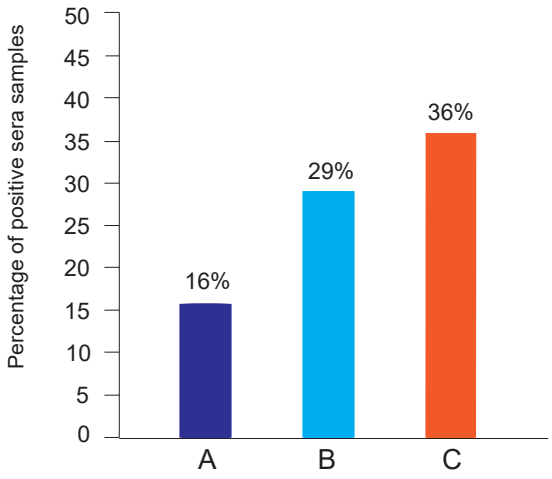
Features

Specimen	Serum
Specification	96 tests
Detection Range	0.5-10μg/L
Percent Recovery	80-120%
Intra-assay CV	≤10%
Inter-assay CV	≤15%

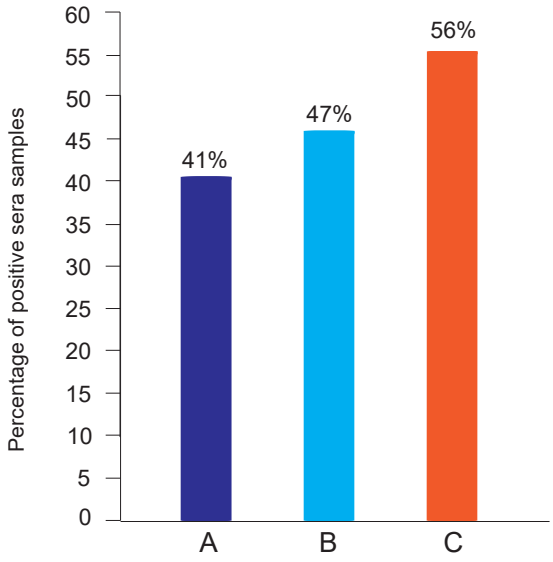
High-Risk Population

(1) Severe neutropenia
(2) Immunodeficiency
(3) Transplantation
(4) ICU inpatients
(5) Diabetics
(6) Renal failure
(7) Hemodialysis
(8) Use of broad-spectrum antibiotics
(9) Central venous catheter

M Test + G Test Combined Detection – Significantly Improves the Accuracy of Diagnosis



Bar diagram showing the increasing sensitivity of the diagnostic tests to detect Candida infection in clinically suspected candidiasis patients. A:Mannan Ag. B:BDG, C: Mannan+BDG



Bar diagram showing the increasing sensitivity of the diagnostic tests to detect Candida infection in candidemia patients. A:Mannan Ag. B:BDG, C: Mannan+BDG

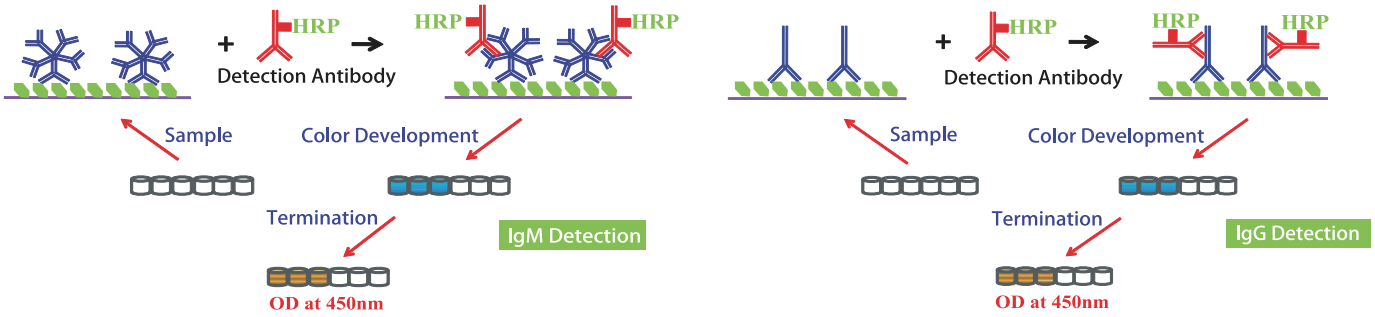
* BMC Infectious Disease, 2007, 7:103

Candida albicans IgM Assay (ELISA) Catalogue No：DNK-1408-1
Candida albicans IgG Assay (ELISA) Catalogue No：DNK-1409-1

Candida albicans IgM/IgG Antibody Detection

It is an indirect EIA for the detection of anti-mannan IgM/IgG in human serum or plasma. The antibodies are used for IC detection.

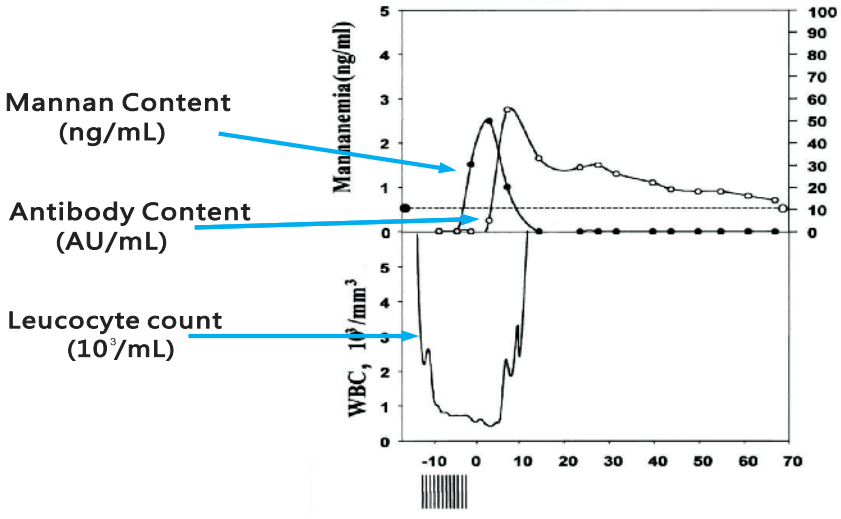
Test Principle



Features

96 tests	ELISA microplate with breakable strips
Specimen	Serum or Plasma
Analyte	Anti-mannan IgM/IgG antibodies
Rapid	Result within 2.5 hours
Sensitivity	>86%
Specificity	>88%

Combine Mannan Ag& Ab Test



Acute neutrophilic leukemia (Neutropenia)

Variation of antibody level can be used as a reference for clinicians to adjust medication and drug withdrawal.

Day 1, AMB (1mg/Kg);

Day 0 to day 9, Abelcet (300mg/day) itraconazole (60mg/day);

Day 10 to day 22, itraconazole (600mg/day);

Day 23 to day 50, voriconazole (400mg/day) i.v.;

Day 50 to day 70, voriconazole (400mg/day) per os

Boualem Sendid et al. J. Clin. Microbiol. 2003;41:4551-4558

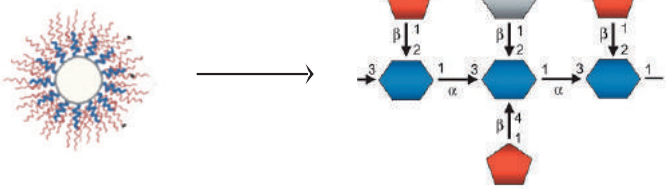
Catalogue No.: **DNK-1404-1**

Cryptococcus neoformans Antigen Assay (ELISA)

Cryptococcus neoformans (CN)

Cryptococcus neoformans is one of the major causes of deep fungal infections in immunocompromised patients. Currently, the incidence rate of Cryptococcosis ranges from 5 to 10 %, while it can be as high as 30% in AIDS patients.

Glucuronoxylomannan (GXM) is the major virulence factor secreted by C. neoformans. It is a reliable marker that is detectable in blood and cerebrospinal fluid (CSF).



C. neoformans

Molecular Structure of GXM

Advantage

- Quantitative Detection
- High Throughput
- High Sensitivity
- High Accuracy
- Strong Anti-interference capability

Features

Specimen	Serum / CSF
Specification	96 tests
Detection Range	3.2-100μg/L
Percent Recovery	90-115%
Intra-assay CV	≤10%
Inter-assay CV	≤15%

High-Risk Population

1) HIV-infected patients
2) Organ transplant recipients
3) Patients receiving high-dose corticosteroid therapy
4) Patients receiving monoclonal antibodies (such as alemtuzumab, infliximab) therapy

ELISA Method Has Much Fewer Confounding Factors than Latex Agglutination [1]

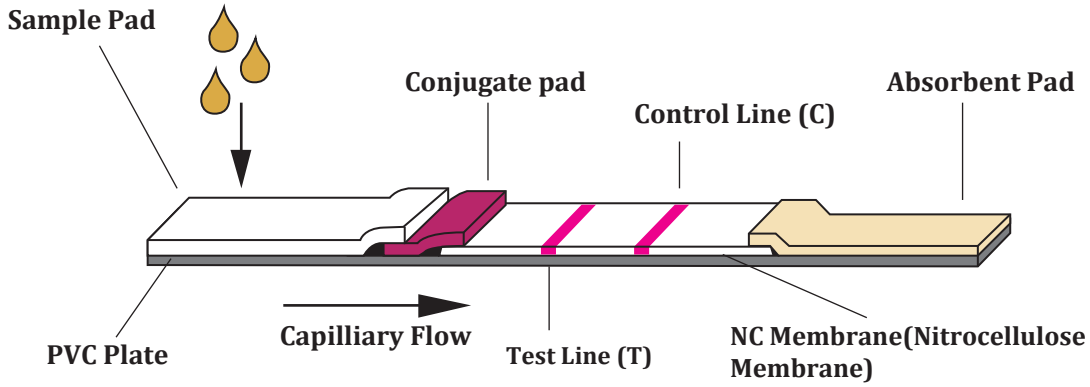
Latex Agglutination	ELISA Method
1.Factors for False Positivity	
2.Serum containing rheumatoid factor	
3.Specimens containing agar coagulant, hydroxyethyl starch	
4.Serum trivalent Fe content exceeds 200mg/dl	
5.Other microbial infections, such as Trichosporon sp.	Other microbial infections, such as Trichosporon sp.
6.Non-specific aggregation due to HIV infection	
7.Inappropriate use of cleaning agents and testing agents, such as test slide	
8.Treatment using pronase	
Factors for False Negativity	
9.In early stage of infection, GXM concentration is too low	In early stage of infection, GXM concentration is too low
Serum containing immune complexes	Serum containing immune complexes
10.GXM antigen concentration is too high, resulting in postzone phenomenon	
11.There is too little amount of fungal capsule, leading to low antigen secretion	There is too little amount of fungal capsule, leading to low antigen secretion

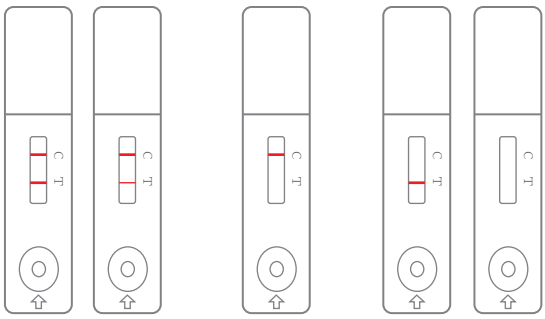
【1】H D Engler and Y R Shea. Effect of potential interference factors on performance of enzyme immunoassay and latex agglutination assay for cryptococcal antigen. J. Clin. Microbiol. 1994, 32(9):2307

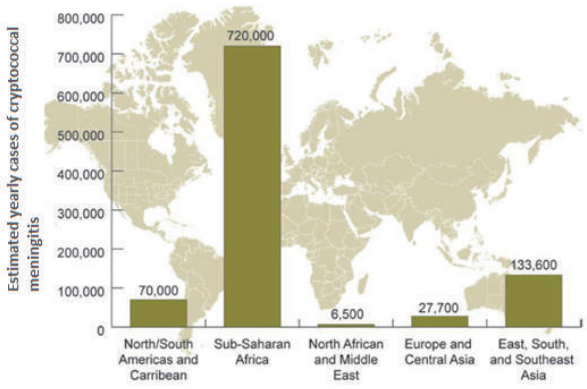
Cryptococcal Antigen Lateral Flow Assay (LFA)

Description

The Cryptococcal Antigen Lateral Flow Assay (LFA) is a dipstick sandwich immunochromatographic assay for the detection of capsular polysaccharide antigens of *Cryptococcus* species complex (*Cryptococcus neoformans* and *Cryptococcus gattii*) in human serum and cerebral spinal fluid (CSF).







*Adapted from BJ Park et al., AIDS 2009;23:525-530

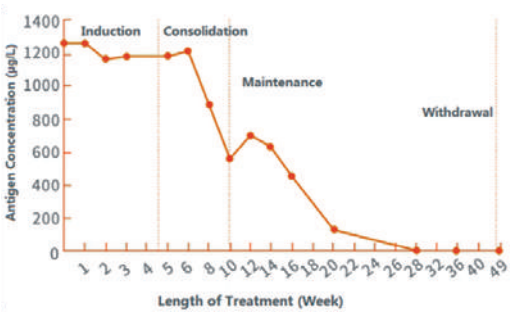
Advantage

- Early and rapid detection of *Cryptococcus* infection
- High sensitivity and specificity
- Time and cost saving
- Easy to carry and use
- Adequate in resource-limited settings

Features

- Specimen ..... Serum/CSF
- Specification ..... 40 tests/kit
- Limit of detection 1ng/mL
- Detection time 15-20mins
- Clinical sensitivity ..... > 98%
- Clinical specificity ..... > 98%
- Inter-assay variation ..... ≤ 15%

Reference Value of Quantitative Antigen Detection in Clinical Diagnosis and Treatment [1]

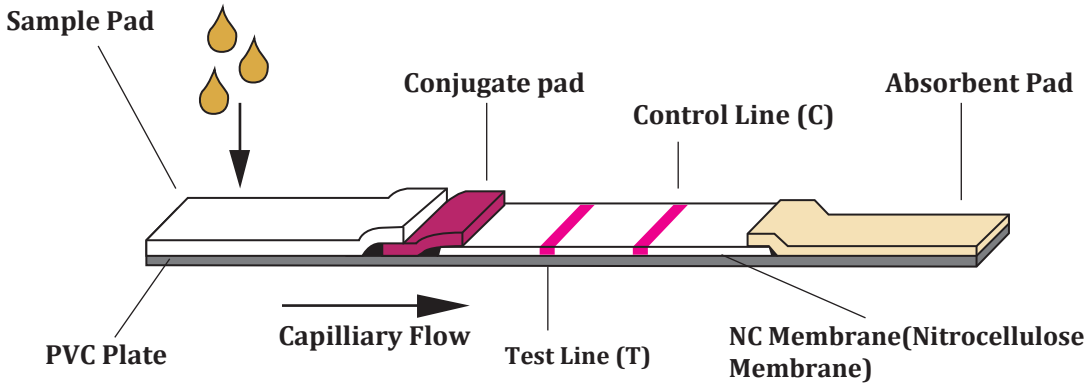


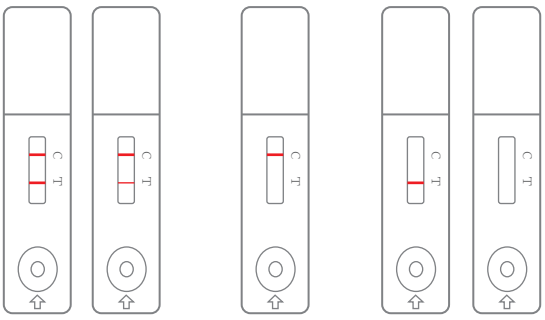
【1】Ji Shujuan, Ni Linghong, Zhang Junli, Huang Jun, Zhou Zhihui, Yu Yunsong. Value of three capsular antigen detection method in diagnosis and efficacy assessment in patients with cryptococcal menungoencephalitis. Chinese Journal of Infection and Chemotherapy, 2015,95（46）: 3733-3736

Candida IgM Lateral Flow Assay(LFA) Catalogue No.: DNK-1412-1
Candida IgG Lateral Flow Assay(LFA) Catalogue No.: DNK-1413-1

Description

The Dynamiker Candida IgG/IgM Lateral Flow Assay (LFA) is a dipstick sandwich immunochromatographic assay for the detection of Candida IgG/ IgM in human serum.





Positive Negative Invalid

Features

Specimen	Serum
Analyte	Candida IgG/ IgM antibodies
Specification	40 tests
Limit of detection	60AU/mL
Detection time	5-10 mins

Advantage

- Early and rapid detection of Candida IgG/ IgM antibodies
- Time and cost effected-effective
- Easy to use
- Adequate in resource-limited settings

Incidence of invasive candidiasis in various populations.

Risk of IC *	Patient Characteristics	Type of IC **	Incidence ***	References
Low	• Any hospitalized patient in whom a blood culture is collected • Residence in the ICU without further risk stratification • Residence in the ICU post-cardiothoracic surgery	Candidemia	<1%	[11,12,20]
Low-to-moderate	• Peritoneal dialysis with peritonitis	Intra-abdominal candidiasis	~3%–6%	[21]
	• Presence of septic shock • ICU residence for ⩾4 days	Candidemia	~3%–7%	[13,14,16]
Moderate	• ICU residence for ⩾4 days with additional risk factors for IC	Candidemia	~10%–15%	[13,16]
High	• Severe acute or necrotizing pancreatitis • Recurrent GI track leak requiring surgery	Intra-abdominal candidiasis	~20%–40%	[7,8,19]

Cornelius J. Clancy, Ryan K. Shields, and M. Hong Nguyen. Invasive Candidiasis in Various PatientPopulations: Incorporating Non-Culture Diagnostic Tests into Rational Management Strategies. Journal of Fungi. 2016, 2(1), 10; doi:10.3390/jof2010010.

Human Procalcitonin Assay (ELISA)

Clinical Facts

In recent years, invasive diagnostic procedures, bacterial antibiotic resistance, severe trauma, organ transplant and chemotherapy patients are becoming more common than ever. These factors have led to a rising rate in hospital infections, sepsis, septic shock and multiple organ dysfunction syndrome (MODS), which are the main reasons for death in patients. Therefore, early and differential diagnosis as well as treatment are very important. However, conventional methods that are currently available (e.g. blood culture, C-reactive protein, white blood cell count and classification etc.) have various limitations and cannot meet the needs of clinical diagnosis.

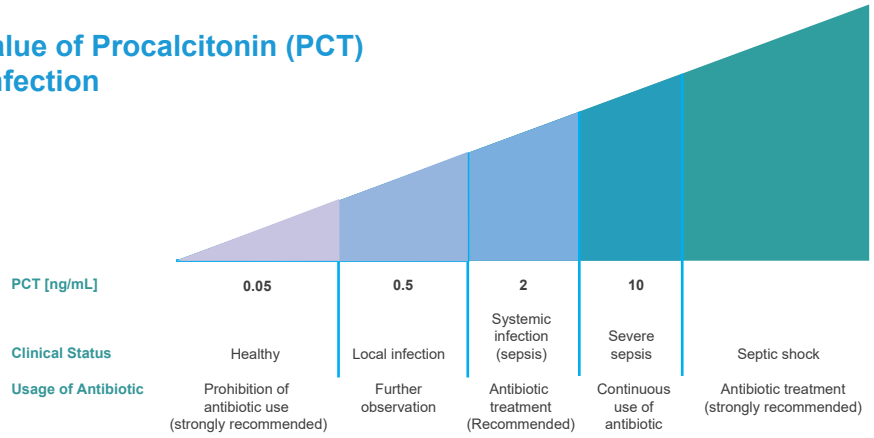
Procalcitonin (PCT)

Procalcitonin (PCT) is the peptide precursor of the hormone calcitonin. It is composed of 116 amino acids with a molecular weight of around 13kD. The molecule is comprised of three main parts: N-terminus, calcitonin and C-terminus. PCT has an in vivo half-life of 25-30 hours and has high in vitro stability.

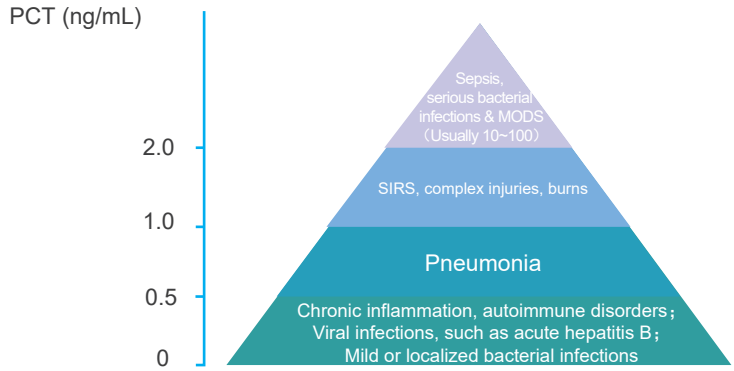
Characteristics of PCT

- Low level in serum of healthy people
- Responsive to systematic bacterial, fungal and parasitic infections
- Little or no reaction towards non-bacterial inflammation, viral infections, cancer, autoimmune diseases and localized infection
- PCT levels decrease rapidly with an effective antibiotic treatment.

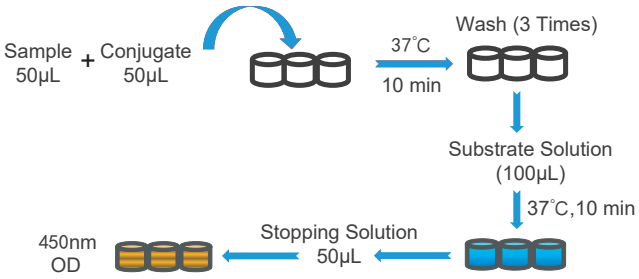
Diagnostic Value of Procalcitonin (PCT) in Bacterial Infection



Serum PCT Concentration in Various Diseases



Procedure



Features

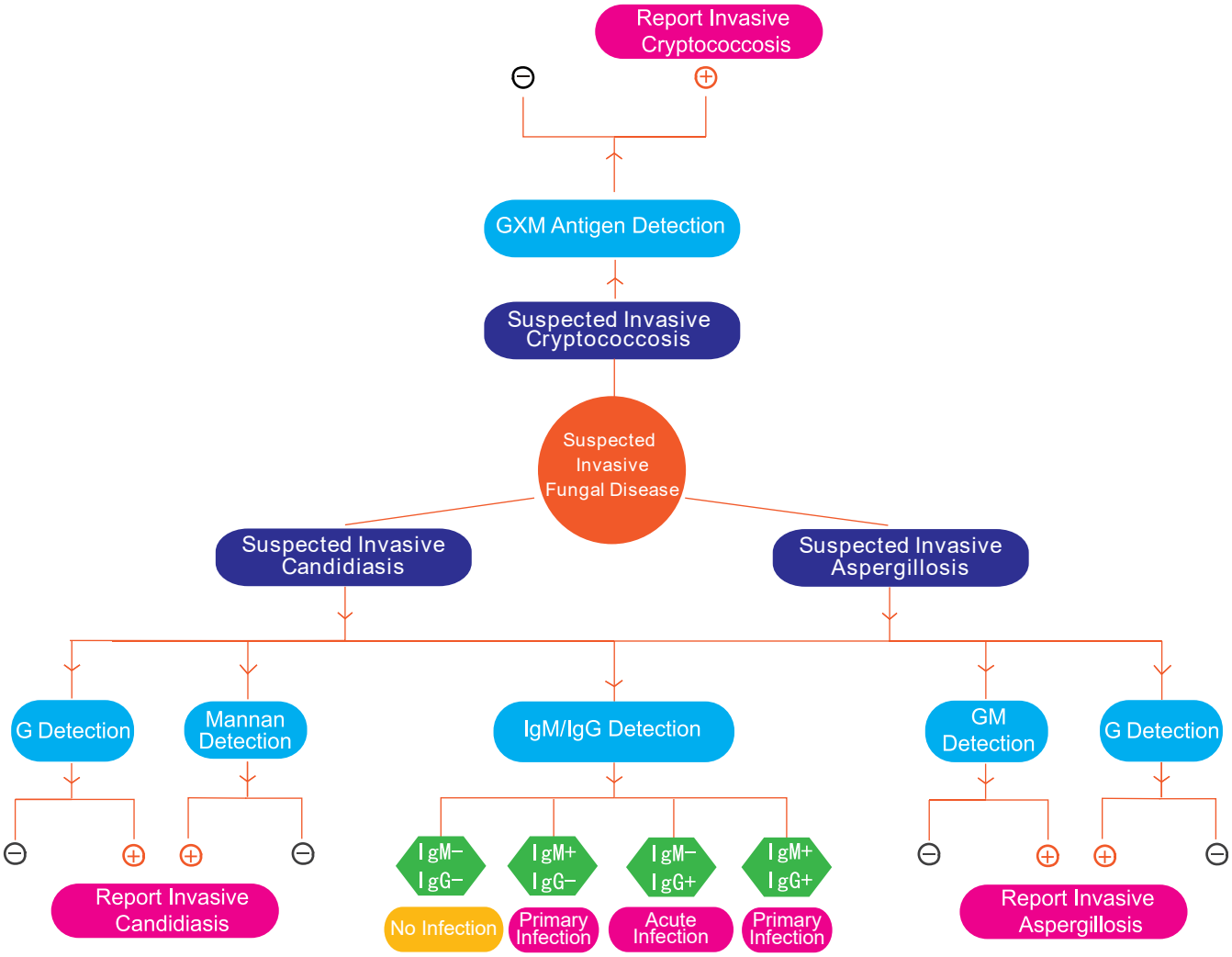
Specification	96 tests
Specimen	Serum or Plasma
Analyte	Procalcitionin
Reliable results	Sensitivity 95% & Specificity 98%

Panel Detection

Combined Detection of Antigens and Antibodies

1. Contribute to complementary and synergistic effect on clinical sensitivity and specificity.

2. Provide an aid for analyzing stages of infections, early diagnosis, timely treatment and monitoring medication. It helps the prognosis of patients and greatly reduces the mortality of IFD.



Invasive Fungal Panel Detection (4 Tests)
G Test + GM Test + Mn Test + GXM Test

Aspergillus Panel Detection (4 Tests)
G Test + GM Test + *A. fumigatus* IgM + *A. fumigatus* IgG

Candida Panel Detection (4 Tests)
G Test + Mn Test + *C. albicans* IgM + *C. albicans* IgG

Invasive Fungal Antigen + Antibody Panel Detection (8 Tests)
G Test + GM Test + Mn Test + GXM Test + *A. fumigatus* IgM + *A. fumigatus* IgG + *C. albicans* IgM + *C. albicans* IgG

Infectious Department & Diagnostic Guidelines

Key Clinical Departments of IFD

Candidiasis	ICU, Hematology Department, Pneumology Department, Oncology Department, Transplantation Department, etc.
Aspergillosis	Hematology Department, Pneumology Department, ICU, Oncology Department, Transplantation Department, Infectious Department, etc.
Cryptococcosis	Infectious Department, ICU, Transplantation Department, etc.

Guidelines

Aspergillus **Galactomannan Assay**	○ Revised Definitions of Invasive Fungal Disease from the EORTC/MSG Consensus Group, 2008 ○ ERS and ESCMID guideline for the management of chronic pulmonary aspergillosis, 2015 ○ IDSA Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America
Fungus (1, 3)-β-D-Glucan Assay	○ Revised Definitions of Invasive Fungal Disease from the EORTC/MSG Consensus Group, 2008 ○ Management and diagnostic guidelines for fungal diseases in infectious diseases and clinical microbiology: critical appraisal, 2012 ○ ESCMID guideline for the diagnosis and management of *Candida* diseases 2012: diagnostic procedures ○ IDSA Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America ○ Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America
Candida **Mannan/ Anti-Mannan Assay**	○ ESCMID guideline for the diagnosis and management of *Candida* diseases 2012: diagnostic procedures
Cryptococcus neoformans **Antigen Assay**	○ Revised Definitions of Invasive Fungal Disease from the EORTC/MSG Consensus Group, 2008
Aspergillus fumigatus **IgG Assay**	○ ERS and ESCMID guideline for the management of chronic pulmonary aspergillosis, 2015 ○ IDSA Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America

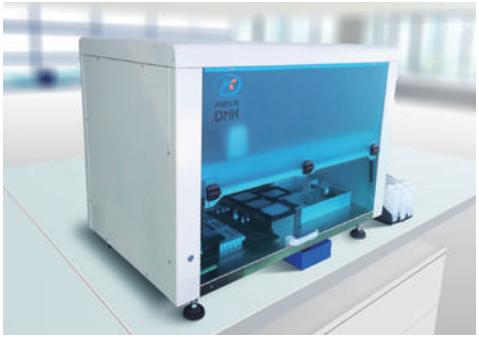
Semi-automation Platform

TECAN SUNRISE™

BioTek ELx808™

Automation Platform

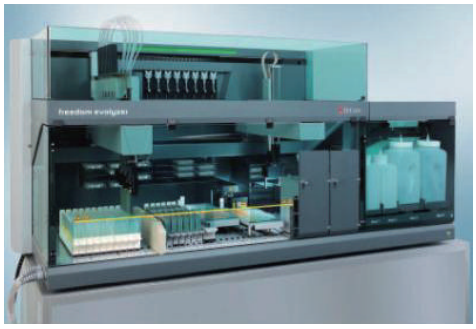
DNK - A400



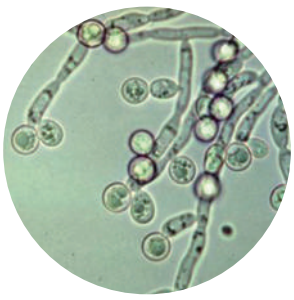
DS2® Automation Platform

Automation ELISA Platforms

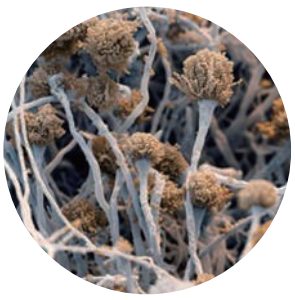
TECAN



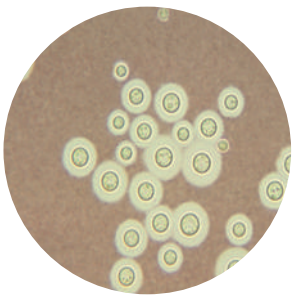
We Care the Diagnosis of Invasive Fungal Disease.



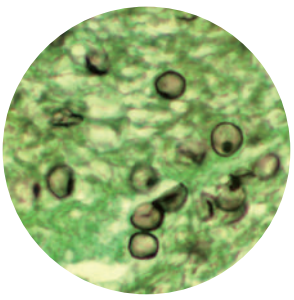
Candida



Aspergillus



Cryptococcus



Pneumocystis

For the Benefit of Human Health

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