Table S1. Fungal allergens approved by the International Allergen Nomenclature Sub-committee (except for a contact exposure for *Trichophyton* spp. and *Malassezia* spp., all allergens are associated with airway exposure) (adapted from http://www.allergen.org/, accessed on 16 January 2023).

Phylum	Species	Allergen	Biochemical name	MW (SDS-PAGE)
Ascomycota	*Alternaria alternata*	Alt a 1		16.4 and 15.3 kDa
		Alt a 3	Heat shock protein 70	
		Alt a 4	Disulfide isomerase	57 kDa
		Alt a 5	Ribosomal protein P2	11 kDa
		Alt a 6	Enolase	45 kDa
		Alt a 7	YCP4 protein	22 kDa
		Alt a 8	Mannitol dehydrogenase	29 kDa
		Alt a 10	Aldehyde dehydrogenase	53 kDa
		Alt a 12	Acid ribosomal protein P1	11 kDa
		Alt a 13	Glutathione-S-transferase	26 kDa
		Alt a 14	Manganese superoxide dismutase	24 kDa
		Alt a 15	Serine protease	58 kDa
	Aspergillus flavus	Asp fl 13	Alkaline serine protease	34 kDa
	Aspergillus fumigatus	Asp f 1	Mitogillin family	18 kDa
		Asp f 2		37 kDa
		Asp f 3	Peroxysomal protein	19 kDa
		Asp f 4		30 kDa
		Asp f 5	Metalloprotease	40 kDa
		Asp f 6	Mn superoxide dismutase	26.5 kDa
		Asp f 7		12 kDa
		Asp f 8	Ribosomal protein P2	11 kDa
		Asp f 9		34 kDa
		Asp f 10	Aspartate protease	34 kDa
		Asp f 11	Peptidyl-prolyl isomerase	24 kDa
		Asp f 12	Heat shock protein P90	90 kDa
		Asp f 13	Alkaline serine protease	34 kDa
		Asp f 15		16 kDa
		Asp f 16		43 kDa
		Asp f 17		27 kDa
		Asp f 18	Vacuolar serine protease	34 kDa
		Asp f 19	HSP 70	69.4 kDa
		Asp f 22	Enolase	46 kDa
		Asp f 23	L3 ribosomal protein	44 kDa
		Asp f 24	EF1B Elongation factor	34 kDa
		Asp f 27	Cyclophilin	18 kDa
		Asp f 28	Thioredoxin	13 kDa
		Asp f 29	Thioredoxin	13 kDa
		Asp f 34	PhiA cell wall protein	20 kDa
		Asp f 35	Cu-Zn Superoxide dismutase similar to Ole e 5	21 kDa
		Asp f 36	Fructose-bisphosphate aldolase	42 kDa
		Asp f 37	Malate dehydrogenase NAD-dependent	35 kDa
		Asp f 38	Uncharacterized Protein	25 kDa
		Asp f 39	FG-GAP repeat protein	35 kDa
	Aspergillus niger	Asp n 14	Beta-xylosidase	105 kDa

	Asp n 18	Vacuolar serine protease	34 kDa
	Asp n 25	3-phytase B	66-100 kDa
Aspergillus oryzae	Asp o 13	Alkaline serine protease	34 kDa
	Asp o 21	TAKA-amylase A	53 kDa
Aspergillus terreus	Asp t 36	Triosephosphate isomerase	28 kDa
Aspergillus versicolor	Asp v 13	Extracellular alkaline serine protease	43 kDa
Candida albicans	Cand a 1	Alcohol dehydrogenase	40 kDa
	Cand a 3	Peroxysomal protein	20 kDa
Candida boidinii	Cand b 2	Peroxisomal membrane protein A	20 kDa
Cladosporium cladosporioides	Cla c 9	Vacuolar serine protease	36 kDa
	Cla c 14	Transaldolase	36.5 kDa
Cladosporium herbarum	Cla h 2		23 kDa
	Cla h 5	Acid ribosomal protein P2	11 kDa
	Cla h 6	Enolase	46 kDa
	Cla h 7	YCP4 protein	22 kDa
	Cla h 8	Mannitol dehydrogenase	28 kDa
	Cla h 9	Vacuolar serine protease	45 kDa
	Cla h 10	Aldehyde dehydrogenase	53 kDa
	Cla h 12	Acid ribosomal protein P1	11 kDa
Curvularia lunata	Cur l 1	Serine protease	31 kDa
	Cur l 2	Enolase	48 kda
	Cur l 3	Cytochrome c	12 kDa
	Cur l 4	Subtilisin like serine protease	54 kDa
Epicoccum purpurascens	Epi p 1	Serine protease	30 kDa
Fusarium culmorum	Fus c 1	Ribosomal protein P2	11 kDa
	Fus c 2	Thioredoxin-like protein	13 kDa
Fusarium proliferatum	Fus p 4	Transaldolase	37.5 kDa
	Fus p 9	Vacuolar serine protease	36.5 kDa
Penicillium brevicompactum	Pen b 13	Alkaline serine protease	33 kDa
	Pen b 26	Acidic ribosomal prot. P1	11 kDa
Penicillium chrysogenum	Pen ch 13	Alkaline serine protease	34 kDa
	Pen ch 18	Vacuolar serine protease	32 kDa
	Pen ch 20	N-acetyl-glucosaminidase	68 kDa
	Pen ch 31	Calreticulin	
	Pen ch 33		16 kDa
	Pen ch 35	Transaldolase	36.5 kDa
Penicillium citrinum	Pen c 3	Peroxysomal membrane protein	18 kDa
	Pen c 13	Alkaline serine protease	33 kDa
	Pen c 19	Heat shock protein P70	70 kDa
	Pen c 22	Enolase	46 kDa
	Pen c 24	elongation factor 1 beta	25 kDa
	Pen c 30	Catalase	97 kDa
	Pen c 32	Pectate lyase	40 kDa
Penicillium crustosum	Pen cr 26	60S acidic ribosomal phosphoprotein P1	11 kDa
Penicillium oxalicum	Pen o 18	Vacuolar serine protease	34 kDa
Stachybotrys chartarum	Sta c 3	Extracellular alkaline Mg-dependent exodesoxyribonuclease	21 kDa
Trichophyton rubrum	Tri r 2	Putative secreted alkaline protease Alp1	29 kDa
	Tri r 4	Serine protease	85 kDa

	Trichophyton tonsurans	Tri t 1		30 kDa
		Tri t 4	Serine protease	83 kDa
	Ulocladium chartarum	Ulo c 1	Alt a 1 homologue	17 kDa
Basidiomycota	*Coprinus comatus*	Cop c 1	Leucine zipper protein	11 kDa
		Cop c 2	Thioredoxin	12 kDa
		Cop c 3		37 kDa
		Cop c 5		16 kDa
		Cop c 7		16 kDa
	Malassezia furfur	Mala f 2	Peroxysomal membrane protein	21 kDa
		Mala f 3	Peroxysomal membrane protein	20 kDa
		Mala f 4	Mitochondrial malate dehydrogenase	35 kDa
	Malassezia sympodialis	Mala s 1		37 kDa
		Mala s 5		18 kDa
		Mala s 6	Cyclophilin	17 kDa
		Mala s 7		16 kDa
		Mala s 8		19 kDa
		Mala s 9		36.7 kDa
		Mala s 10	heat shock protein 70	86 kDa
		Mala s 11	manganese superoxide dismutase	23 kDa
		Mala s 12	glucose-methanol-choline (GMC) oxidoreductase	67 kDa
		Mala s 13	Thioredoxin	13 kDa
	Psilocybe cubensis	Psi c 1		
		Psi c 2	Cyclophilin	16 kDa
	Rhodotorula mucilaginosa	Rho m 1	Enolase	47 kDa
		Rho m 2	vacuolar serine protease	31 kDa
	Schizophyllum commune	Sch c 1	Glucoamylase	61 kDa
Zygomycota	*Rhizopus oryzae*	Rhi o 1	Aspartyl endopeptidase	44 kDa
		Rhi o 2	Cyclophilin	18 kDa

Table S2. Overview of the most common fungal infections.

Type	Infection	Etiological agent	Risk factors	Transmission	Clinical manifestations	Diagnosis	Treatment
Superficial infections	Dermatophytosis	Dermatophytes	Age Gender Other medical conditions	Transfer through shared surfaces and equipment Contact with animals Fungal persistence in household environment	Alopecia Desquamation Edema Erythema Pruritus Purulent exudate	Medical and travel history Symptoms Physical examinations Lab tests	Antifungal medication (azoles, allylamine, epigallocatechin 3-O-gallate) Plant essential oils Nail removal
	Oral candidiasis	*Candida* spp.	Age Gender Medication Other medical conditions	Direct or indirect contact with contaminated people, objects, or surfaces	Ageusia Angular cheilitis Bleeding Denture stomatitis Edema Erythema Leukoplakia Paresthesia Pruritus Thrush Xerostomia	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (azoles) Topic medication (nystatin) Plant essential oils Phytochemicals
	Vaginal candidiasis	*Candida* spp.	Medication Other medical conditions Behavioral aspects	Direct or indirect contact with contaminated people or objects	Edema Erythema Dyspareunia Dysuri Odorless vaginal discharge with a cottage cheese appearance Paresthesia Pruritus Vulvodynia	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (azoles) Topic medication (boric acid, nystatin, flucytosine) Other medications (ibrexafungerp, spilanthol, atorvastatin, probiotics, p-Coumaric acid)
	Candida balanitis	*C. albicans*+++ *C. krusei*	Age Presence of foreskin Medications Other medical conditions Behavioral aspects	Direct or indirect contact with contaminated people or objects	Edema Dysuria Inflammation Phimosis Pruritus Smegma Soreness Tight, shiny skin on the glans	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (azoles) Topic medication (azoles, nystatin) Circumcision
	Pityriasis versicolor	*Malassezia* spp.	Other medical conditions Behavioral aspects Environmental exposure	Outgrows of natural skin populations	Hyperpigmented and hypopigmented macules Pruritus Scaling	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (azoles, terbinafine) Topical medication (pyrithione zinc, selenium sulfide,

							sulfur associated with salicylic acid)
Subcutaneous infections	Eumycetoma	*M. mycetomatis* ++ *M. grisea*++ *P. boydii*++ *L. senegalensis* ++ *C. lunata* ++ *N. rosatii* ++ *Acremonium spp.* ++ *Fusarium spp.* ++	Age Gender Other medical conditions Environmental exposure	Fungal spores enter the body through skin injuries No person-to-person transmission	Painless nodules Limb deformation Destruction of muscular and osseous tissue	Medical and travel history Symptoms Physical examinations Lab tests Imagological tests	Antifungal medication (azole) Plant essential oils Surgery Amputation
	Chromoblastomycosis	*Fonsecaea* spp. *Cladophialophora* spp. *P. verrucosa* *Rhinocladiella* spp. *C. ludoviensis*	Age Gender Other medical conditions Environmental exposure	Fungal spores enter the body through skin injuries	Moriform bodies	Medical and travel history Symptoms Physical examinations Lab tests	Antifungal medication (azoles) Surgery Cryotherapy Thermotherapy CO_2 laser Photodynamic therapy
Systemic infections	Aspergillosis	*A. fumigatus*+++ *A. niger* *A. terreus* *A. nidulans* *A. oryzae*	Medications Other medical conditions Behavioral factors	Inhalation of spores No person-to-person transmission	Arthralgia Cephalalgia Chills Chest pain Cough with hemoptysis Dry cough Dyspnea Eye symptoms Fatigue Fever Skin lesions Weight loss Wheezing	Medical history Symptoms Physical examinations Lab test Imagological test	Oral corticosteroids Antifungal medication (polyenes, azoles, echinocandins) Surgery Embolization
	Aspergilloma	*A. fumigatus* +++					
	Candidemia and invasive candidiasis	*Candida* spp.	Medication Other medical conditions Long hospital stays Abdominal surgery Implanted medical devices	Candida gets into the bloodstream, causing candidemia Healthcare-associated infection. No person-to-person transmission.	Abdominal pain Cephalalgia Chills Fatigue Fever Light sensitivity Low blood pressure Memory loss Mental confusion Myalgia Skin rash Vision changes	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles, echinocandins, triterpenoids)
	Cryptococcosis	*C. neoformans*+++ *C. gattii*	Age Medication Other medical conditions Behavioral factors Environmental exposure	Inhalation of spores No person-to-person transmission	Behavioral changes Cephalalgia Cervicalgia Chest pain Chills	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles)

				Cough Cough with hemoptysis Dyspnea Fever Malaise Mental confusion Nausea and vomiting Sensitivity to light Sleep hyperhidrosis Weight loss	Imagological test	
Blastomycosis	*Blastomyces* spp.	Age Gender Other medical conditions Environmental exposure	Inhalation of spores No person-to-person transmission	Anorexia Chest pain Chills Fever Myalgia Sleep hyperhidrosis Dyspnea Cough Cough with hemoptysis Fatigue Weight loss	Medical and travel history Symptoms Physical examinations, Lab tests Imagological tests	Antifungal medication (polyenes, azoles)
Coccidioidomycosis	*C. immitis* ++ *C. posadasii*	Age Race Medication Other medical conditions Environmental exposure	Inhalation of spores No person-to-person transmission	Arthralgia Blood-tinged sputum Cephalalgia Chest pain Chills Cough Dyspnea Fatigue Fever Myalgia Nodules in the lungs Red and spotty rash Sleep hyperhidrosis Weight loss	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles, echinocandins, triterpenoids)
Histoplasmosis	*H. capsulatum* ++	Age Medication Other medical conditions Environmental exposure	Inhalation of spores No person-to-person transmission	Arthralgia Cephalalgia Chest pain Chills Cough Fatigue Fever Myalgia	Medical history Symptoms Physical examinations Lab tests Imagological test	Antifungal medication (polyenes, azoles)
Emergomycosis	*Emergomyces* spp.	Medication Other medical conditions	Inhalation of spores	Anemia Ataxia Behavioral changes Cephalalgia	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles, echinocandins)

				Crusted hyperkeratotic plaques Endocervical masses Epistaxis Erythema Lobar atelectasis Mental Confusion Nasal congestion Oroantral fistula Pneumonia Seizure Skin lesions Thrombocytopenia Vision changes		
Paracoccidioidomycosis	*Paracoccidioides* spp. +	Age Gender Race Other medical conditions Behavioral factors	Inhalation of spores Fungal spores enter the body through skin injuries No person-to-person transmission	Cough Dyspnea Fatigue Fever Hepatosplenomegaly Lymphadenitis Mouth and throat lesions Weight loss	Medical history Symptoms Physical examinations Lab tests Imagological tests	Antifungal medication (polyenes, azoles)
Talaromycosis*	*T. marneffei* ++	Other medical conditions	Inhalation of spores Fungal spores enter the body through skin injuries	Agitation Anemia Confusion Depressed consciousness Dyspnea Fatigue Fever Hepatosplenomegaly Lymphadenopathy Respiratory and gastrointestinal abnormalities Skin lesions Splenomegaly Weight loss	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles)
Fusariosis	*Fusarium* spp. ++	Other medical conditions	Fungal spores enter the body through skin injuries	Fever Myalgia Pneumonia Skin lesions Superficial infection in the feet with lymphangitis Toxemic appearance	Medical history Symptoms Physical examinations Lab tests	Antifungal medication (polyenes, azoles)
Hyalohyphomycosis*	Hyaline fungi	Medication Other medical conditions Abdominal surgery Implanted medical devices	Inhalation of spores Fungal spores enter the body through skin injuries	Anemia Arthralgia Cellulitis Cerebritis	Medical history Symptoms Physical examinations	Antifungal medication (polyenes, azoles, echinocandins)

		Trauma Burns Environmental exposure	Ingestion of contaminated food products	Mental confusion Cough Endophthalmitis Fever Fungemia Hepatosplenomegaly Keratitis Lymphadenopathy Onychomycosis Osteomyelitis Peripheral edema Peritonitis Pneumonia Renal failure Sinusitis Weight loss	Lab tests	Topic medication (nystatin) Surgery
Lomentosporiosis	*L. prolificans* + + (formerly *S prolificans*)	Medication Other medical conditions Surgery Trauma Behavioral aspect	Inhalation of spores Fungal spores enter the body through skin injuries Near-drowning Nosocomial infection	Arthralgia Brain abscess formation Cough Decreased visual acuity Dyspnea Edema Embolic phenomena Erythema Eye pain Fever Meningitis Meningoencephalitis Pleuritic chest pain Photophobia Visual disturbances	Medical history Symptoms Physical examinations Lab tests	antifungal medicines (polyenes, azoles, echinocandins) Surgery Hyperbaric chamber
Mucormycosis*	Mucorales + +	Medication Other medical conditions Behavioral factors	Inhalation of spores No person-to-person transmission	Abdominal pain Cephalalgia Chest pain Coma Cough Dyspnea Fever Gastrointestinal bleeding Lesions on nasal bridge or upper inside of mouth Mental status changes Nasal or sinus congestion Nausea and vomiting One-sided facial edema	Medical history Symptoms Physical examinations Lab tests Imagological tests	Antifungal medication (polyenes, azoles) Surgery
Phaeohyphomycosis*	Dematiaceous fungi	Medication Other medical conditions Behavioral factors	Inhalation of spores Immersion in freshwater	Behavioral changes Cough Dyspnea Fever	Medical history Symptoms Physical examinations	Antifungal medication (polyenes, azoles)

				Gastrointestinal bleeding Mental confusion Nausea and vomiting Seizures Sepsis Skin rashes Ulcers	Lab tests	
Pneumocystis pneumonia	*P. jirovecii* ++	Medication Other medical conditions	Healthcare-associated infection. Person-to-person through the air, mainly by droplets.	Chest pain Chills Dry cough Dyspnea Fatigue Fever Hypoxemia Respiratory failure	Medical history Symptoms Physical examinations Lab tests Imagological tests	Antifungal medication (trimethoprim in association with sulfamethoxazole)
Sporotrichosis*	*Sporothrix* spp.	Age Gender Medication Other medical conditions Behavioral aspects	Fungal spores enter the body through skin injuries Contact with animals No person-to-person transmission	Arthralgia Cephalalgia Chest pain Cough Dyspnea Fever Mental confusion Seizures Skin nodules Weight loss	Medical history Symptoms Physical examinations Lab tests Imagological tests	Antifungal medication (polyenes, azoles, supersaturated potassium iodide, terbinafine)

Legend: BAL=broncho alveolar lavage; BMA= bone marrow aspirate; COPD=chronic obstructive pulmonary disease; CT scan=computerized tomography scan; LNA=lymph node aspirate; *fungal diseases with both subcutaneous and invasive presentations. According to the Fungal Priority Pathogen List [141], fungi are signaled as critical (+++), high (++) and medium priority species (+).