

**Supplementary Table S1.** Clinical characteristics and identifications of all *Aspergillus* spp. isolates analyzed in our study

Species	Strain	Time	Origin	Age	Gender	Underlying disease	Diagnosis	GenBank accession number			Morphological identification	Molecular identification
								ITS	BenA	CaM		
<i>A. fumigatus</i> C	CMXY 1555	2016.03	BALF	65	M	-	Colonization	MG991570	MG991328	MG991436	<i>A. fumigatus</i>	<i>A. fumigatus</i>
N=57	CMXY 1704	2016.03	BALF	75	M	-	CPA	MG991571	MG991334	MG991442	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 1856	2016.03	BALF	50	M	-	IPA	MG991573	MG991338	MG991446	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 2075	2016.04	BALF	38	M	-	Colonization	MG991577	MG991348	MG991456	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 2236	2016.05	BALF	68	M	-	Colonization	MG991579	MG991358	MG991466	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 2245	2016.05	BALF	49	M	-	CPA	MG991580	MG991359	MG991467	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 2576	2016.05	BALF	58	M	-	IPA	MG991582	MG991375	MG991483	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 5207	2016.06	BALF	53	M	Liver disease	Colonization	MG991585	MG991403	MG991511	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 5317	2016.06	BALF	69	M	-	Colonization	MG991586	MG991404	MG991512	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 5447	2016.07	BALF	35	M	-	Colonization	MG991587	MG991405	MG991513	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 5995	2016.07	BALF	66	M	-	Colonization	MG991590	MG991408	MG991516	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 6729	2016.08	BALF	90	M	COPD	Colonization	MG991592	MG991410	MG991518	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 6866	2016.08	BALF	35	M	-	Colonization	MG991594	MG991412	MG991520	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 7591	2016.09	BALF	79	F	DM	CPA	MG991595	MG991413	MG991521	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 9054	2016.10	BALF	73	F	-	CPA	MG991598	MG991416	MG991524	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 9646	2016.12	BALF	68	M	DM	Colonization	MG991599	MG991417	MG991526	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 9825	2016.12	BALF	73	F	-	CPA	MG991600	MG991419	MG991527	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 9967	2017.02	BALF	48	M	Hematologic cancer, CKD	Colonization	MG991601	MG991420	MG991528	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 10234	2017.02	BALF	78	F	Cerebral infarction	Colonization	MG991602	MG991313	MG991421	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 10245	2017.03	BALF	69	M	CKD, Diabetes	Colonization	MG991603	MG991314	MG991422	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 10850	2017.04	BALF	66	F	-	Colonization	MG991604	MG991315	MG991423	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 12193	2017.04	BALF	35	M	-	Colonization	MG991607	MG991318	MG991426	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 12402	2017.07	BALF	35	M	-	Colonization	MG991608	MG991319	MG991427	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>

CMXY 12654	2017.08	BALF	20	M	SLE	Colonization	MG991609	MG991320	MG991428	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 13113	2017.11	BALF	65	M	-	CPA	MG991610	MG991321	MG991429	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 13433	2017.12	BALF	71	M	-	Colonization	MG991611	MG991322	MG991430	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 13495	2017.12	BALF	49	M	MODS	Colonization	MG991612	MG991323	MG991431	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 13993	2017.01	BALF	83	F	DM, Chronic heart failure	Colonization	MG991613	MG991324	MG991432	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 14287	2017.03	BALF	62	F	-	Colonization	MG991614	MG991325	MG991433	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 14383	2017.08	BALF	58	M	-	Colonization	MG991615	MG991326	MG991434	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 15698	2017.05	BALF	64	M	-	Colonization	MG991617	MG991329	MG991437	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 15837	2017.05	BALF	48	M	Liver disease	CPA	MG991618	MG991330	MG991438	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 16512	2017.06	BALF	44	M	Hematologic cancer	Colonization	MG991620	MG991332	MG991440	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 16517	2017.12	BALF	77	F	-	Colonization	MG991621	MG991333	MG991441	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 18243	2017.11	BALF	61	M	Hematologic cancer	Colonization	MG991623	MG991337	MG991445	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 19504	2017.02	BALF	51	M	Liver disease	Colonization	MG991626	MG991341	MG991449	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 21351	2017.02	BALF	69	F	-	Colonization	MG991631	MG991350	MG991458	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 21425	2017.04	BALF	43	M	DM	Colonization	MG991634	MG991353	MG991461	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 21658	2017.03	BALF	69	F	-	Colonization	MG991635	MG991354	MG991462	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 22687	2017.05	BALF	52	F	COPD	Colonization	MG991639	MG991361	MG991469	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 22843	2017.05	BALF	86	M	Chronic heart failure, CKD	Colonization	MG991640	MG991362	MG991470	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 22850	2017.02	BALF	83	M	-	Colonization	MG991641	MG991363	MG991471	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 23257	2017.08	BALF	88	M	-	Colonization	MG991644	MG991366	MG991474	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 23299	2018.02	BALF	83	M	Chronic heart failure	Colonization	MG991645	MG991367	MG991475	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 25241	2018.01	BALF	65	M	DM	Colonization	MG991650	MG991373	MG991481	<i>A. fumigatus</i>	<i>A. fumigatus</i>
CMXY 27062	2018.03	BALF	92	M	Solid tumor, DM, COPD	Colonization	MG991656	MG991380	MG991488	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 27755	2017.12	BALF	63	M	Solid tumor, PT, DM	IPA	MG991660	MG991384	MG991492	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 28940	2017.12	BALF	48	M	PT, Solid tumor	CPA	MG991663	MG991387	MG991495	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
CMXY 29459	2017.11	BALF	75	M	Solid tumor	CPA	MG991665	MG991389	MG991497	<i>A. fumigatus</i>	<i>A. fumigatus</i>

	CMXY 29987	2017.10	BALF	65	M	Solid tumor	CPA	MG991667	MG991391	MG991499	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 29991	2017.09	BALF	78	M	Solid tumor	CPA	MG991668	MG991392	MG991500	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 30056	2018.02	BALF	76	M	Epidural hematoma	Colonization	MG991669	MG991393	MG991501	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 30169	2018.03	BALF	58	M	Paraplegia, MODS	Colonization	MG991670	MG991394	MG991502	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 30534	2018.02	BALF	66	F	-	Colonization	MG991672	MG991396	MG991504	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 30812	2018.01	BALF	52	M	-	Colonization	MG991674	MG991398	MG991506	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
	CMXY 30905	2017.12	BALF	53	M	-	Colonization	MG991675	MG991399	MG991507	<i>A. fumigatus</i>	<i>A. fumigatus</i>
	CMXY 31319	2017.11	BALF	50	F	PT	CPA	MG991676	MG991400	MG991508	Genus <i>Aspergillus</i>	<i>A. fumigatus</i>
<i>A. flavus</i> C	CMXY 1982	2016.03	BALF	66	M	-	Colonization	MG991575	MG991344	MG991452	<i>A. flavus</i>	<i>A. flavus</i>
N=23	CMXY 5740	2016.03	BALF	50	M	-	Colonization	MG991589	MG991407	MG991515	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 8113	2016.03	BALF	63	M	-	Colonization	MG991597	MG991415	MG991523	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 12030	2016.03	BALF	59	M	-	Colonization	MG991606	MG991317	MG991425	Genus <i>Aspergillus</i>	<i>A. tamaritii</i>
	CMXY 14895	2017.01	BALF	94	M	-	Colonization	MG991616	MG991327	MG991435	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 18241	2017.02	BALF	55	M	-	Colonization	MG991622	MG991336	MG991444	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 21394	2017.04	BALF	66	F	-	Colonization	MG991632	MG991351	MG991459	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 21395	2017.03	BALF	68	F	CKD, DM	Colonization	MG991633	MG991352	MG991460	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 21725	2017.06	BALF	64	M	DM	ABPA	MG991636	MG991355	MG991463	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 22227	2017.05	BALF	88	M	Cerebral infarction	Colonization	MG991637	MG991357	MG991465	<i>A. flavus</i>	<i>A. effusus</i>
	CMXY 22565	2017.07	BALF	46	M	-	Colonization	MG991638	MG991360	MG991468	Genus <i>Aspergillus</i>	<i>A. effusus</i>
	CMXY 22865	2017.06	BALF	30	M	Liver disease	Colonization	MG991642	MG991364	MG991472	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 22879	2017.06	BALF	18	F	-	Colonization	MG991643	MG991365	MG991473	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 23324	2017.08	BALF	23	M	Liver disease	Colonization	MG991646	MG991368	MG991476	<i>A. flavus</i>	<i>A. effusus</i>
	CMXY 24985	2017.09	BALF	94	M	DM	CPA	MG991649	MG991372	MG991480	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 25420	2017.10	BALF	48	F	-	Colonization	MG991651	MG991374	MG991482	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 25987	2017.03	BALF	71	M	CKD, Solid tumor, DM	Colonization	MG991654	MG991378	MG991486	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 26475	2017.02	BALF	68	M	-	Colonization	MG991655	MG991379	MG991487	Genus <i>Aspergillus</i>	<i>A. flavus</i>

	CMXY 27481	2017.04	BALF	89	M	Diabetes, Solid tumor, Asthma	ABPA	MG991658	MG991382	MG991490	<i>A. flavus</i>	<i>A. effusus</i>
	CMXY 27600	2017.03	BALF	61	F	Craniocerebral injury	Colonization	MG991659	MG991383	MG991491	<i>A. flavus</i>	<i>A. flavus</i>
	CMXY 28854	2017.08	BALF	56	M	Cerebral infarction, Diabetes	Colonization	MG991661	MG991385	MG991493	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 29346	2017.11	BALF	84	M	ITP, IPF	Colonization	MG991664	MG991388	MG991496	Genus <i>Aspergillus</i>	<i>A. flavus</i>
	CMXY 30197	2018.01	BALF	38	M	Cerebral hemorrhage	Colonization	MG991671	MG991395	MG991503	Genus <i>Aspergillus</i>	<i>A. flavus</i>
<i>A. niger</i> C	CMXY 1714	2016.03	BALF	52	M	Solid tumor	Colonization	MG991572	MG991335	MG991443	<i>A. niger</i>	<i>A. tubingensis</i>
N=15	CMXY 1963	2016.04	BALF	75	M	-	Colonization	MG991574	MG991342	MG991450	Genus <i>Aspergillus</i>	<i>A. niger</i>
	CMXY 3556	2016.07	BALF	64	F	-	Colonization	MG991583	MG991401	MG991509	<i>A. niger</i>	<i>A. awamori</i>
	CMXY 5154	2016.12	BALF	66	M	-	Colonization	MG991584	MG991402	MG991510	<i>A. niger</i>	<i>A. awamori</i>
	CMXY 5474	2017.01	BALF	65	F	-	Colonization	MG991588	MG991406	MG991514	Genus <i>Aspergillus</i>	<i>A. tubingensis</i>
	CMXY 15849	2017.03	BALF	78	M	COPD	Colonization	MG991619	MG991331	MG991439	<i>A. niger</i>	<i>A. niger</i>
	CMXY 19015	2017.04	BALF	59	M	-	Colonization	MG991625	MG991340	MG991448	Genus <i>Aspergillus</i>	<i>A. tubingensis</i>
	CMXY 19775	2017.03	BALF	82	F	-	Colonization	MG991627	MG991343	MG991451	Genus <i>Aspergillus</i>	<i>A. tubingensis</i>
	CMXY 20958	2017.10	BALF	65	M	Cerebral infarction	Colonization	MG991630	MG991349	MG991457	Genus <i>Aspergillus</i>	<i>A. niger</i>
	CMXY 23633	2017.11	BALF	62	M	Solid tumor	Colonization	MG991647	MG991370	MG991478	<i>A. niger</i>	<i>A. niger</i>
	CMXY 23807	2017.02	BALF	65	M	Solid tumor	Colonization	MG991648	MG991371	MG991479	<i>A. niger</i>	<i>A. awamori</i>
	CMXY 25845	2017.08	BALF	68	M	-	Colonization	MG991652	MG991376	MG991484	Genus <i>Aspergillus</i>	<i>A. awamori</i>
	CMXY 25850	2017.04	BALF	61	F	SLE, Diabetes	Colonization	MG991653	MG991377	MG991485	Genus <i>Aspergillus</i>	<i>A. tubingensis</i>
	CMXY 27207	2017.10	BALF	42	M	-	Colonization	MG991657	MG991381	MG991489	Genus <i>Aspergillus</i>	<i>A. tubingensis</i>
	CMXY 30575	2018.01	BALF	26	M	PT	Colonization	MG991673	MG991397	MG991505	Genus <i>Aspergillus</i>	<i>A. niger</i>
<i>A. terreus</i>	CMXY 937	2017.05	BALF	80	F	COPD, asthma	CPA	MG991569	MG991418	MG991525	Genus <i>Aspergillus</i>	<i>A. terreus</i>
<i>A. sydowii</i>	CMXY 18899	2016.10	BALF	61	F	-	Colonization	MG991624	MG991339	MG991447	Genus <i>Aspergillus</i>	<i>A. sydowii</i>
<i>A. nidulans</i>	CMXY 2059	2016.04	BALF	57	M	Solid tumor	Colonization	MG991576	MG991346	MG991454	Genus <i>Aspergillus</i>	<i>A. nidulans</i>

“-” means the patient had no underlying disease; Abbreviations: F, Female; M, Male; BALF, bronchoalveolar lavage fluid; DM, diabetes mellitus; SLE, systemic lupus erythematosus; MODS, multiple organ dysfunction syndrome; PT, Pulmonary tuberculosis; IPF, idiopathic pulmonary fibrosis; COPD, chronic obstructive

pulmonary disease; CKD, Chronic kidney disease; *A. fumigatus* C, *Aspergillus fumigatus* complex; *A. flavus* C, *Aspergillus flavus* complex; *A. niger* C, *Aspergillus niger* complex; *A. terreus*, *Aspergillus terreus*; *A. sydowii*, *Aspergillus sydowii*; *A. nidulans*, *Aspergillus nidulans*.

**Supplementary Table S2.** Primers and Polymerase Chain Reaction amplification conditions used for molecular identification of genotypes and species for the isolates analyzed in this study.

Locus	Primers	Primer sequence	Amplification conditions
ITS	ITS1	5'-TCCGTAGGTGAACCTGCGG-3'	94°C 5min; 30 cycles: 94°C 60s, 55°C 60s, 72°C 60s; 72°C 10 min
	ITS4	5'- TCCTCCGCTTATTGATATGC-3'	
BenA	BT2a	5'-GGTAACCAAATCGGTGCTGCTTTC-3'	95°C 7 min; 35 cycles: 95°C 30s, 61°C 30s, 72°C 1 min; 72°C 10 min
	BT2b	5'-ACCCTCAGTGTAGTGACCCTTGGC-3'	
CaM	Cmd5	5'-CCGAGTACAAGGAGGCCTTC-3'	95°C 7 min; 35 cycles: 95°C 30s, 57°C 30s, 72°C 1 min; 72°C 10 min
	Cmd6	5'-CCGATAGAGGTCATAACGTGG-3'	

Abbreviation: ITS, internal transcribed spacer; BenA, partial  $\beta$ -tubulin; CaM, calmodulin.

**Supplementary Table S3.** Epidemiological cutoff values for susceptibility for antifungal drugs triazoles, caspofungin and amphotericin B against five *Aspergillus* species.

Species	ECVs (mg/L)					
	ITZ	VRZ	PSZ	ISZ	CFG	AmB
<i>A. fumigatus</i>	1 <sup>37</sup>	1 <sup>37</sup>	0.25 <sup>37</sup>	1 <sup>36</sup>	1 <sup>35</sup>	2 <sup>38</sup>
<i>A. flavus</i>	1 <sup>37</sup>	1 <sup>37</sup>	0.25 <sup>37</sup>	1 <sup>36</sup>	0.5 <sup>35</sup>	4 <sup>38</sup>
<i>A. niger</i>	2 <sup>37</sup>	2 <sup>37</sup>	0.5 <sup>37</sup>	4 <sup>36</sup>	0.25 <sup>35</sup>	2 <sup>38</sup>
<i>A. terreus</i>	1 <sup>37</sup>	1 <sup>37</sup>	0.5 <sup>37</sup>	1 <sup>36</sup>	0.5 <sup>35</sup>	4 <sup>38</sup>
<i>A. nidulans</i>	1 <sup>37</sup>	2 <sup>37</sup>	1 <sup>37</sup>	0.25 <sup>36</sup>	0.5 <sup>35</sup>	4 <sup>38</sup>

Abbreviations: ITZ, itraconazole; VRZ, voriconazole; PSZ, posaconazole; ISZ, isavuconazole; CFG, caspofungin; AmB, amphotericin B; ECVs, epidemiological cutoff values. MIC values greater than these values are considered resistant to the respective antifungal drug.