

**Table S1. Case report and case series describing CAPA.**

Author/ Country/ Algorithm	No. cases/ Definition	Sex/Age	Underlying diseases	Steroid / Target therapy COVID-19	Days from ICU/TI to CAPA (IQR)	Sample/ <i>Aspergillus</i> spp.	GM (ODI) index Serum/ respiratory specimen	<i>Aspergillus</i> PCR in serum/ respiratory specimen	Positive BDG	Specific imaging findings	Antifungals	Outcome
Trovato [65]/ Italy/ NR	1/NR	M/77	AH, DM	Steroid	16	BAS/A. <i>niger</i> Positive DE	4.9/-	-/Pos (BAS)	Yes	No	Voriconazole	Dead
Benedetti [66]/ Argentina/ mAspICU	5/ Probable	M/23	ALL	Steroid	6	TA/Neg	0.9/4.2 (TA)	-	-	Nodules	Voriconazole	Dead
	Probable	M/57	None	Steroid	3	Sputum/ <i>A. fumigatus</i>	0.92/-	-	-	No	AMB	Alive
	Probable	M/44	DM, AH, Obesity	Steroid	32	TA/Neg	1.01/-	-	-	Nodules	Voriconazole	Alive
	Probable	M/69	DM	Steroid	6	TA/A. <i>fumigatus</i> Positive DE	2.15/Neg (TA)	-	-	-	Voriconazole	Alive
	Probable	F/69	DM, AH	Steroid	13	TA/A. <i>fumigatus</i>	0.57/3.17 (TA)	-	-	-	Voriconazole	Alive
Iwanaga [67]/ Japan/ NR	1/NR	M/79	Polymyalgia rheumatica (chronic steroids)	Steroid	23*	TA/A. <i>fumigatus</i> Positive DE	-	-	-	Nodules	AMB	Dead
Lahmer [68]/ Germany/ NR	2/NR	M/80	CPD	-	5	BAL/ <i>A. fumigatus</i>	1.5/6.3 (BAL)	-	-	No	AMB	Dead
	NR	M/70	No	-	6	BAL/ <i>A. fumigatus</i>	Neg/6.1 (BAL)	-	-	No	AMB	Dead
Antinori [69]/ Italy/ NR	1/ Proven (autopsy)	M/73	Obesity, AH, DM, CVD	No	4	BAS/ <i>A. fumigatus</i>	8.6/-	-	-	No	Isavuconazole AMB	Dead
Prattes [70]/ Austria/ NR	1/NR	M/70	AH, DM, CVD, CPD (chronic steroids)	-	2	TA/A. <i>fumigatus</i>	Neg/-	-	Neg	Halo sign	Voriconazole	Dead
Blaize [71]/ France/ AspICU	1/Putative	M/74	AH, MDS	-	4	TA/A. <i>fumigatus</i> Positive DE	Neg/Neg (TA)	Neg/Pos (TA)	Neg	No	No	Dead
Santana [72]/ Brazil/ NR	1/Proven (autopsy)	M/71	AH, DM	-	-	Autopsy/ <i>A. penicillioides</i>	-	-	-	Nodule	No	Dead
Helleberg [73]/ Denmark/ AspICU	2/ Putative	F/63	AH	No	5	TA/A. <i>fumigatus</i>	1.1/8.2 (BAL)	-	-	No	Voriconazole	Dead
	Putative	F/53	CPD	Steroids	1	TA/A. <i>fumigatus</i>	Neg/2.2 (TA)	-	-	No	Voriconazole	Dead
Bruno [74]/ Italy/ mAspICU	1/Probable	M/68	No	TCZ	24	BAL/ <i>A. fumigatus</i>	Neg/Pos (BAL)	-	-	Cavity + air crescent	Voriconazole	Alive

Mohamed[75]/ Ireland/ mAspICU	1/Probable	M/66	Obesity, AH, DM	-	7	TA/ <i>A. fumigatus</i>	1.1/5.5 (TA)	-	Pos	No	AMB	Dead
Ghelfenstein [76]/France/ AspICU	1/Putative	M/56	Obesity, DM, CPD	Eculizumab	7	TA/ <i>A. fumigatus</i> Positive DE	Neg/-	-/Pos (TA)	Neg	Nodule	No	Dead
Fernandez [77]/Argentina/ mAspICU	1/Probable	M/85	AH	Steroid	25	TA/ <i>A. flavus</i>	1.4/-	-	-	No	Voriconazole AMB	Dead
Schein [78]/ France/ EORTC pers. <sup>o</sup>	1/Probable	F/87	No	Steroid	-	TA/Neg	1.9/6.03 (sputum)	Pos/-	-	Nodule Air-crescent	Voriconazole	Dead
Abdalla [79]/ Qatar/ AspICU	2/Putative	M/58	DM, AH, HBV	Steroid, TCZ	5	BAL/ <i>A. niger</i>	-	-	-	No	Anidulafungin AMB	Dead
	Putative	M/74	No	Steroid	18	BAL/ <i>A. terreus</i>	-	-	-	No	Voriconazole	Dead
Patti <sup>oo</sup> [80]/ USA/ NR	1/NR	M/73	AH	Steroid	-	BAL/ <i>A. flavus</i>	Neg/-	-	-	Cavity with aspergilloma	Voriconazole	Alive
Marr [81]/ USA/ mAspICU pers. <sup>ooo</sup>	20/Probable	F/71	CPD, CKD	No	8	BAS/ <i>A. fumigatus</i>	Neg/-	-	Pos	Nodules	18 treated	Alive
	Probable	F/56	CPD, DM, AH, CVD, Obesity	No	2	-	Pos/-	-	-	Nodules		Alive
	Probable	F/70	AH	No	10	-	Pos/-	-	Pos	-		Dead
	Probable	F/68	AH, dementia	No	2	BAS/ <i>A. fumigatus</i>	Neg/-	-	-	-		Alive
	Probable	M/69	AH	No	12	BAS/ <i>A. niger</i>	Neg/-	-	-	No		Dead
	Probable	M/55	AH, CVD	No	-1	BAS/ <i>A. fumigatus</i>	Neg/-	-	Neg	No		Alive
	Probable	F/85	AH, DM, CKD	No	9	BAS/ <i>A. fumigatus</i>	Pos/-	-	Pos	Nodules Cavities		Alive
	Probable	F/50	CKD, CPD	TCZ	23	BAS/ <i>A. fumigatus</i>	Neg/-	-	Pos	-		Alive
	Probable	F/45	CPD, SLE	Ocrelizumab	12	BAS/ <i>A. fumigatus</i>	Neg/-	-	Pos.	No		Alive
	Probable	F57	DM	No	4	BAS/ <i>A. fumigatus</i>	Neg/-	-	Neg	-		Alive
	Probable	M/57	Cancer	No	22	BAS/ <i>A. fumigatus</i>	Neg/-	-	Inter	-		Alive
	Probable	M/61	AH	No	16	Neg	Pos/-	-	Neg	-		Dead
	Probable	F/75	AH, CPD, DM, Obesity	No	12	BAS/ <i>A. fumigatus</i>	-	-	-	-		Alive
	Probable	F/56	CPD	TCZ	2	BAS/ <i>A. fumigatus</i>	Neg/-	-	-	-		Alive
	Probable	M70	AH	No	3	BAS/ <i>A. fumigatus</i> ,	-	-	-	No		Alive

	Probable	M/76	CPD	Steroid	11	<i>A. niger</i> BAS/ <i>A. fumigatus</i> , <i>A. niger</i>	Neg/-	-	-	-		Alive
	Probable	M/73	AH, DM	Steroid	7	BAS/ <i>Aspergillus</i>	Neg/-	-	-	No		Alive
	Probable	M/78	AH	Steroid, siltuximab	14	BAS/ <i>Aspergillus</i>	-	-	-	-		Alive
	Probable	F/56	No	TCA, anakinra	9	BAL/ <i>A. terreus</i>	-	-	-	-		Alive
	Probable	M/81	DM, AH, cirrhosis	Steroid	24	BAL/ <i>A. niger</i>	Neg/Pos (BAL)	-	-	Cavity		Alive
Trujillo [82]/ Spain/ EORTC	1/Probable	F/55	AH, CKD, SOT (chronic steroids)	TCZ	7	Sputum/ <i>A. fumigatus</i>	Neg/-	-	Pos	Cavity Tree-in-bud	Isavuconazole AMB	Alive
Shadrach [83]/ India/ AspICU	1/Putative	F/55	Obesity	Steroid	(post- COVID)	BAL/ <i>A. fumigatus</i>	1.2/4.7 (BAL)	-	-	Nodule	Voriconazole	Alive
Bellanger [84]/ France/ White	1/Putative	M/55	Cancer, HSCT	Steroid	19	BAL/ <i>A. fumigatus</i>	Neg/-	Neg/Pos (BAL)	-	No	AMB	Dead
Witting [85]/ USA/ NR	1/NR	M/72	No	TCZ	14	BAL/ <i>Aspergillus</i>	-/8.13 (BAL)	-	-	Cavity Fungus-ball	Voriconazole Micafungin	Alive
Haglund [86]/ Denmark/ mAspICU	1/Probable	M/52	Obesity, DM, CVD	NA	24	BAL/ <i>A. fumigatus</i> Positive DE	-/5.7 (BAL)	-/Pos (BAL)	-	-	Voriconazole	Alive
Hakamifard[87]/I ran/ ECMM	1/Probable	M/35	No	Steroid	17	BAL/ <i>A. ochraceus</i> Positive DE	2.1/-	-	-	Nodule	Voriconazole AMB	Dead
Imoto [64]/ Japan/ mAspICU	1/Probable	M/72	AH, CVD, CPD, stroke	Steroid	14	TA/ <i>A. fumigatus</i>	0.6/-	-	Pos	Nodule	Voriconazole Micafungin	Dead
Johnson [88]/ USA/ ECMM	1/Probable	M/79	AH, DM	Steroid	14	BAL/ <i>A. fumigatus</i> Positive DE	2.04/7.86 (BAL)	-	Pos	Cavity	Voriconazole	Alive
Kakamad [89]/ Iraq/ NR	1/Proven (lobectomy)	M/50	DM	NA	21	BAL/ <i>Aspergillus</i> Positive DE	-	-	-	Cavity	Voriconazole (+ surgery)	Alive
Lescure [90]/ France/ NR	1/NR	M/80	Cancer	No	-	TA/ <i>A. flavus</i>	-	-	-	Cysts	Voriconazole Isavuconazole	Alive
Nasrullah [91]/ USA/ AspICU	1/Putative	M/68	AH, DM	Steroid	-	BAL/ <i>A. fumigatus</i>	Neg/2.16 (BAL)	-	Neg	No	Voriconazole	Dead
Salehi [92]/ Iran/ NR	1/Proven (Pulmonary biopsy)	M/70	No	Steroid	37	Biopsy/ <i>A. flavus</i>  Positive DE	-	-	-	Cavity Halo-sign	Voriconazole	Dead

Sasoni [93]/ Argentina/ mAspICU- IAPA	1/Probable	M/73	PTE	Steroid	30	Neg	1.8/-	Pos/-	-	No	Voriconazole AMB	Alive
Sharma [94]/ Austria/ NR	1/NR	F/66	AH	NA	8	TA/ <i>A. fumigatus</i>	-	-	-	No	Voriconazole	Alive
Van Someren Gréve [95]/ Netherland/ NR	1/Proven (autopsy)	M/79	AH, DM, CVD	Steroid	14	BAL/ <i>A. fumigatus</i>	1.7/7.9 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
Abolghasemi [96]/Iran/ NR	1/NR	F/66	No	Steroid	15	BAL/ <i>A. terreus</i>  Positive DE	4.15/-	-	-	No	Voriconazole	Dead
Steenwyk [97]/ USA/ NR	1/NR	M/57	No	-	-	BAS/ <i>A. fumigatus</i>	-	-	-	-	Caspofungin	Dead
Flikweert [98]/ Netherland/ IAPA	6/Probable	F/73	No	Steroid	19	BAL/ <i>A. fumigatus</i>	-/4.4 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
	Probable	F/58	No	Steroid	20	Neg	-/3.4 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
	Probable	M/68	No	No	1	BAL/ <i>A. fumigatus</i>	-/5.7 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
	Probable	M/78	AH, CKD	Steroid	20	Neg	-/4.3 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
	Probable	M/83	AH, DM	No	11	Neg	-/1.7 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
	Probable	M/74	No	Steroid	24	Neg	-/4.4 (BAL)	-	-	No	Voriconazole Anidulafungin	Dead
García Clemente [99]/ Spain/ NR	2/NR	F/78	Hyperparathy- roidism	No	4	BAL/ <i>A. fumigatus</i> + <i>A. nidulans</i>	-/Pos (BAL)	-	-	No	Voriconazole	Alive
	NR	M/83	AH, CVD, CKD	No	-	BAS/ <i>A. fumigatus</i>	-/Pos (BAS)	-	-	No	AMB Voriconazole	Alive
Nasri [100]/ Iran/ EORTC	1/Probable	F/42	AML	No	9	Neg	4/-	-	-	No	AMB	Dead
Martin C.S. [101]/Spain/ AspICU	3/Putative	M/71	AH	Steroid TCZ Anakinra	19	BAL/ <i>A. fumigatus</i>	-/1.4 (BAL)	-	-	No	Anidulafungin Isavuconazole	Alive
	Putative	M/73	AH, DM	Steroid	25	BAL/ <i>A. fumigatus</i>	-/1.4 (BAL)	-	-	No	Isavuconazole	Alive
	Putative	F/67	No	Steroid	27	BAL/ <i>A. fumigatus</i>	-/1.5 (BAL)	-	-	No	AMB Isavuconazole	Dead
	2/NR	40	No	Steroid	25	BAL/	-	-	-	No	Voriconazole	Dead

Alobaid [102] /Kuwait/ NR	NR	60	DM, AH, CVD	TCZ Steroid	26	<i>A. niger</i> Positive DE TA/ <i>A. niger</i>	6.5/-	-	-	Cavity	AMB	Dead
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Data are absolute number (percentage) unless otherwise specified.

**Abbreviations.** DE, direct examination of respiratory sample showing septate branching hyphae; AH, arterial hypertension; DM; diabetes mellitus; CVD, cardiovascular disease; CPD, chronic pulmonary disease; SOT, solid organ transplant; HSCT, haematopoietic stem cell transplant; CML, chronic myeloid leukaemia; MDS, myelodysplastic syndrome; CKD, chronic kidney disease; AML, acute myeloid leukaemia; ALL, acute lymphoblastic leukaemia; AS, ankylosing spondylitis; CLL, chronic lymphocytic leukaemia; PTE, pulmonary thromboembolism; HBV, hepatitis B virus; UC, ulcerative colitis; TCZ, tocilizumab; SLE, systemic lupus erythematosus; BAL, bronchial-alveolar lavage; BAS, bronchial aspirate; TA, tracheal aspirate; RS, respiratory specimen; NR, not reported; ODI, optical density index; TI, tracheal intubation; BDG, (1-3)- $\beta$ -D-glucan; AMB: amphotericin B.

\* Days from hospital admission to CAPA.

\*\* Days from COVID-diagnosis to CAPA.

\*\*\* *Asp*ICU, IAPA and EORTC.

° EORTC + serology with ELISA and WesternBlot assay.

°° Case of subacute aspergillosis with fungus ball on CT scan.

°°° Cases were defined as recovery of *Aspergillus* species from respiratory fluids (tracheobronchial secretions, sputum, BAL) or positive (index  $\geq 1$ ) serum or BAL markers, identified with work-up for possible secondary pneumonia, typically clinically indicated with new fever or respiratory decompensation with new focal infiltrates on chest radiograph or computed tomography scan.

^ Age is expressed as median (Inter-quartile range)

Results for a  $\beta$ -D-glucan assay were reported when available but did not suffice to establish case diagnosis.