Table S1. Characteristics of children with COVID-19 across their clinical spectrum.

Characteristics	Asymptomatic (n=29)	Mild (n=102)	Moderate (n=43)
Age, years	7 (1-10)	3 (0.5-11)	4 (1-11)
<1, n (%)	6 (21)	31 (30)	9 (9)
1-5, n (%)	10 (34)	29 (28)	13 (30)
6-10, n (%)	10 (34)	16 (16)	7 (7)
>10, n (%)	3 (10)	26 (25)	14 (14)
Female, n (%)	13 (45)	46 (45)	21 (49)
SARS-CoV-2 PCR positive, n (%)	29 (100)	102 (100)	43 (100)
SARS-CoV-2 IgG antibody positive, n (%)	7 (24)	31 (30)	15 (35)
SARS-CoV-2 IgM antibody positive, n (%)	15 (52)	36 (35)	17 (40)
Close contact positive, n (%)	5 (17)	87 (85)	25 (58)
Laboratory			
WBC counts, $10^3/mm^3$	5,305 (4,675-5,925)	6,160 (4,925-8,975)	8,230 (5,575-10,288)
Neutrophils, %	49 (37-62)	38 (28-51)	54 (33-70)
Lymphocytes, %	37 (30-45)	45 (34-58)	33 (16-46)
Neutrophil-to-lymphocyte ratio	1 (0.9-2)	0.9 (0.5-1)	2 (0.8-4)
Coinfections, n (%)			
None	28 (97)	97 (95)	41 (95)
Bacterial[a]	1 (3)	5 (5)	2 (5)
Viral	0	0	0
Comorbidities, n (%)			
None	27 (94)	95 (93)	14 (32)
Heart disease	0	0	1 (2)
Renal disease	0	0	2 (5)
Lung disease	1 (3)	3 (3)	16 (37)
Prematurity	0	0	3 (7)
Autoimmunity	0	1 (1)	2 (5)
Cancer	1 (3)	1 (1)	2 (5)
Obesity	0	1 (1)	3 (7)
Diabetes	0	1 (1)	0
PICU admission, n (%)	0	0	2 (5)
Medications, n (%)			
None	28 (97)	97 (95)	23 (53)
Corticosteroid	0	0	18 (42)
IVIG	0	0	0
Antibiotic	1 (3)	5 (5)	2 (5)
Enoxaparin	0	0	0
Aspirin	0	0	0
Inotropic	0	0	0

Respiratory status, n (%)			
Mechanical ventilation	0	0	0
Oxygen requirement	0	2 (2)	26 (60)
Room air	29 (100)	100 (98)	17 (40)

Data are expressed as median values (25th–75th percentile) unless otherwise indicated. Abbreviations: IVIG, Intravenous Immunoglobulin; PICU, pediatric intensive care unit; WBCs, white blood cells. [a] Types of bacterial co-infection includes urinary tract infections (*E. coli* and *K. pneumoniae*), catheter-related infection with bloodstream infection (*S. hominis*), tuberculosis (*M. tuberculosis*), pneumonia and appendicitis.

Table S2. Characteristics of MIS-C cohort

Characteristics	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21
Age (y)	4	7	5	5	0.6	3	13	12	12	8	7	0.6	10	5	11	6	2	1	6	11	1
Gender	M	M	M	M	M	M	M	M	M	M	F	F	F	M	M	M	F	M	M	M	F
Comorbidities																					
Lung disease	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	No
Obesity	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Presentation																					
Fever	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Rash	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes	No	No
Conjunctivitis	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Yes	Yes	No	No	No
Pneumonia	No	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	No	No	No	No	No	No
Gastrointestinal	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Shock	Yes	No	No	Yes	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No
Cardiac Abnormalities	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Haematological	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	No	No	No	Yes
SARS-CoV-2 PCR	Pos	Pos	Pos	Neg	Pos	Neg	Neg	Neg	Pos	Pos	Neg	Neg	Pos	Neg	Neg	Neg	Pos	Neg	Neg	Pos	Pos
SARS-CoV-2 IgG	Pos	Pos	Neg	Pos	Neg	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
Prior SARS-CoV-2 Exposure[a]	Yes	not known	not known	Yes	not known	Yes	Yes	Yes	Yes	Yes	Yes	Yes	not known	Yes	Yes	Yes	not known	Yes	Yes	Yes	Yes
Medication	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	None
	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	IVIG	
	ENX	ATB	ENX	ENX	ENX	ENX	ENX	ASA		ENX	ENX		ATB	ENX	INO	ENX	ENX	ENX	ENX	ENX	
	ASA	INO	ASA	ASA	ASA	ASA	ASA			ASA	ASA		INO	ASA		ASA	ASA	ASA	ASA	ASA	
	INO			INO			INO			INO	INO			INO							
PICU admission	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No
MV	No	No	No	No	No	No	Yes	No	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No
Outcome[b]	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav	Fav

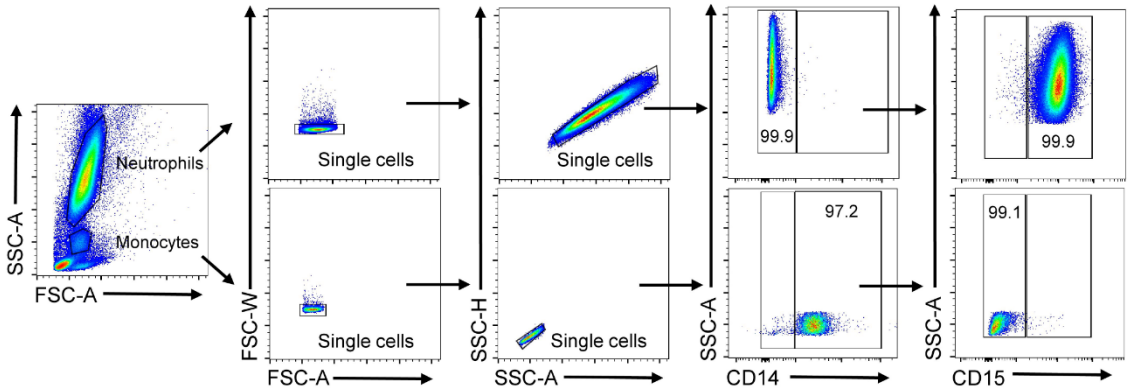
Abbreviations: ATB, antibiotic; ASA, aspirin; CS, corticosteroid; ENX, enoxaparin; F, female; Fav, favourable; INO, inotropic; IVIG, Intravenous Immunoglobulin; M, male; MV, mechanical ventilation; PICU, pediatric intensive care unit. [a] Prior exposure denotes prior positive SARS-CoV-2 PCR and/or positive close contact history. [b] Outcome refers to the disease course.

Table S3. Characteristics of children recovered from COVID-19

Characteristics	Recovered (n=8)
Age, years	4 (0.6-12)
Female, n (%)	3 (38)
Prior SARS-CoV-2 PCR positive, n (%)	8 (100)
SARS-CoV-2 IgG antibody positive, n (%)	7 (88)
Comorbidities, n (%)	
None	5 (64)
Heart disease	1 (12)
Lung disease	0
Cancer	1 (12)
Diabetes	1 (12)
Prematurity	0
Days post illness onset	30 (26-32)
Severity at hospital admission	
Asymptomatic	0
Mild	6 (75)
Moderate	2 (25)
Outcome[a]	
Discharged	8 (100)
Hospitalized	0

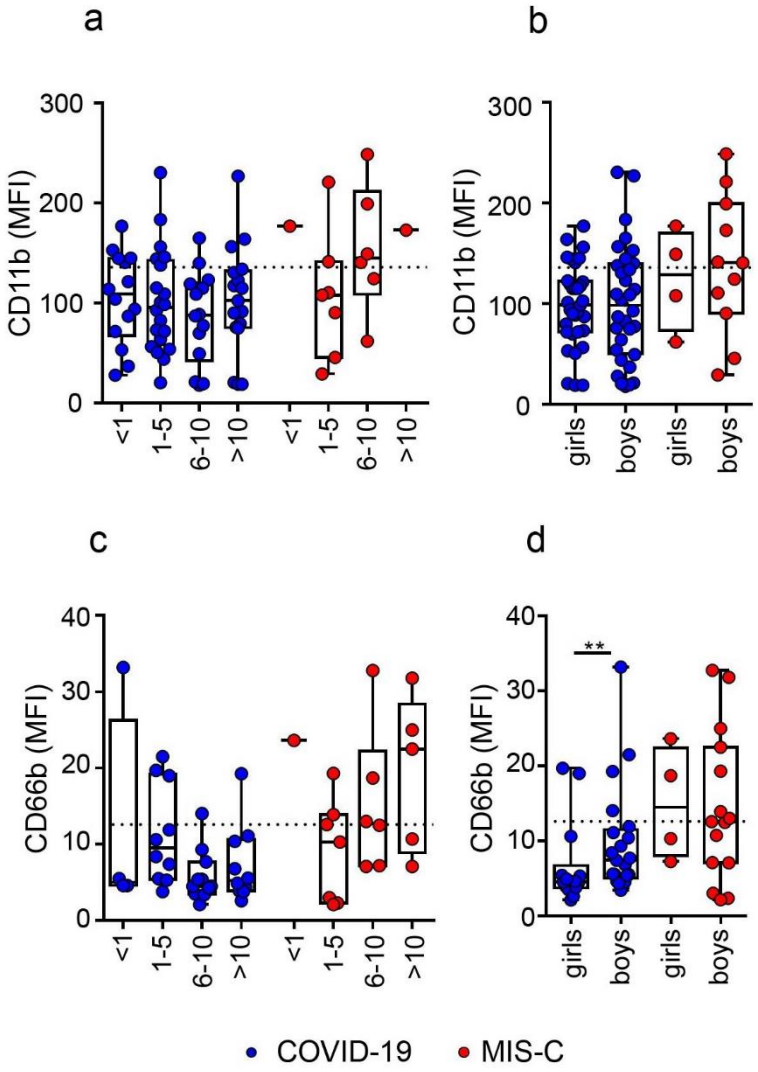
Data are expressed as median values (25th–75th percentile) unless otherwise indicated. [a] Outcome refers to the clinical result of illness.

Figure S1



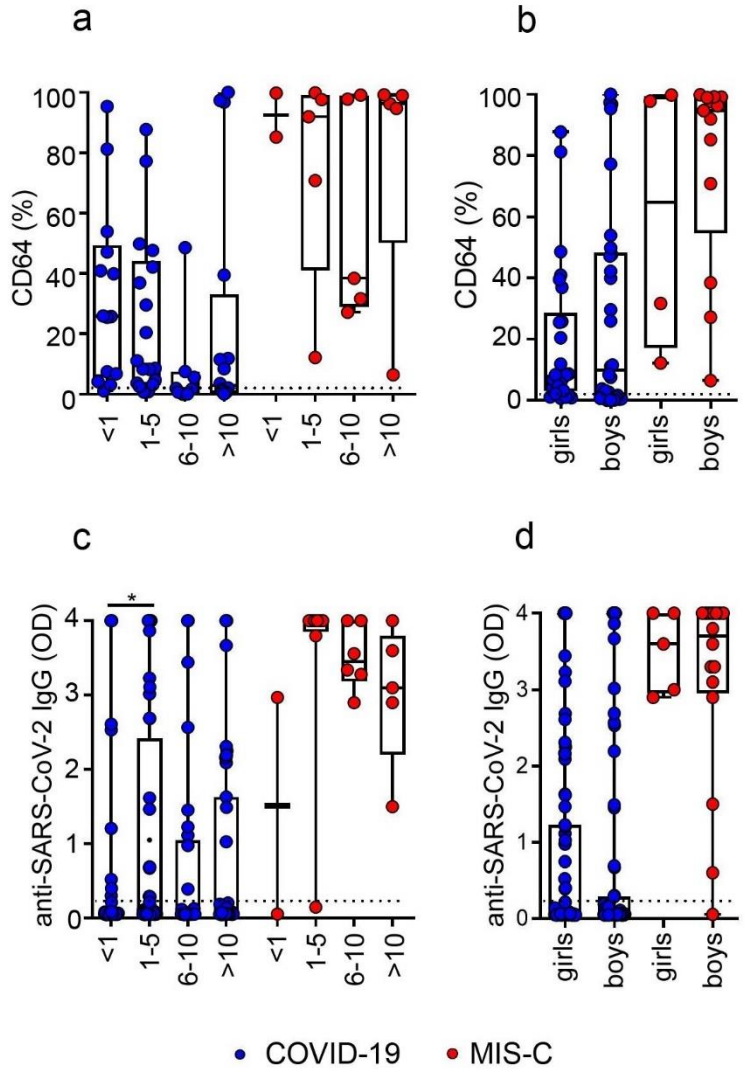
Legend to Figure S1. Gating strategy to analyze neutrophil phenotype. Representative FACS profile showing the gating strategy for neutrophils. Whole blood (100 µL) was stained with the antibody cocktail mix (anti-CD14 and anti-CD15) for 20 min at room temperature. Then, erythrocytes were lysed and cells were fixed. Data were acquired using a FACSCanto II (Becton Dickinson) and analyzed with FlowJo software. FSC-A vs SSC-A allows the preliminary identification of monocytes and neutrophils. From that, FSC-A vs FSC-W and SSC-A vs SSC-H single cells are gated. A new gating for SSC-A vs CD14 allows to obtain the $CD14^-$ and $CD14^+$ population. Next, the $CD15^+$ and $CD15^-$ population were gated. Neutrophils were defined as $CD14^-CD15^+$ cells. From this population the markers can be investigated for percentages of positive markers and MFI. This gating strategy was used in Fig. 1, 2, 4 a-d, 5 c and Fig. S2.

Figure S2



Legend to Figure S2. Expression of CD11b and CD66b in neutrophils from children with COVID-19 and MIS-C divided according to their age and sex. (a-b) CD11b expression in neutrophils from children with COVID-19 and MIS-C. **(a)** <1 year, n=14 and n=1; 1 to 5 years, n=20 and n=7; 6 to 10 years, n=14 and n=6; and >10 years, n=17 and n=1; for children with COVID-19 and MIS-C, respectively. **(b)** Girls, n=33 and n=32; boys, n=4 and n=11, for COVID-19 and MIS-C, respectively. **(c-d)** CD66b expression in neutrophils from children with COVID-19 and MIS-C. **(c)** <1 year, n=4 and n=1; 1 to 5 years, n=10 and n=7; 6 to 10 years, n=11 and n=6; and >10 years, n=10 and n=5; for children with COVID-19 and MIS-C, respectively. **(d)** Girls, n=14 and n=4; boys, n=21 and n=15, for COVID-19 and MIS-C, respectively. Dotted line depicts the median expression of markers in neutrophils from healthy controls. Median and min to max of n donors are shown in a-d. P values were determined by Kruskal-Wallis test and Mann-Whitney U test: ** p<0.01. COVID-19 (blue circle), MIS-C (red circle).

Figure S3



Legend to Figure S3. Expression of CD64 in neutrophils and IgG levels directed to the spike protein of SARS-CoV-2 from children with COVID-19 and MIS-C divided according to their age and sex. (a-b) CD64 expression in neutrophils from children with COVID-19 and MIS-C. **(a)** <1 year, n=14 and n=2; 1 to 5 years, n=18 and n=5; 6 to 10 years, n=8 and n=5; and >10 years, n=16 and n=5; for children with COVID-19 and MIS-C, respectively. **(b)** Girls, n=26 and n=4; boys, n=30 and n=13, for COVID-19 and MIS-C, respectively. Dotted line depicts the median expression of CD64 in neutrophils from healthy controls. **(c-d)** Plasma levels of IgG antibodies directed to SARS-CoV-2 spike protein in children with COVID-19 and MIS-C. **(c)** <1 year, n=46 and n=2; 1 to 5 years, n=52 and n=8; 6 to10 years, n=33 and n=6; and >10 years, n=43 and n=5, for COVID-19 and MIS-C, respectively. **(d)** Girls, n=80 and n=5; boys, n=94 and n=16, for COVID-19 and MIS-C, respectively. Dotted line indicates the cut-off value. Median and min to max of n donors are shown in a-d. P values were determined by Kruskal-Wallis test and Mann-Whitney U test: * $p<0.05$. COVID-19 (blue circle), MIS-C (red circle).