Supplementary Table 1. Summary of variables included in the Wood Downes Score (WDS). WDS ranges from 1 to 10, stratifying the population into mild (≤3), moderate (4-7), and severe (≥8) bronchiolitis.

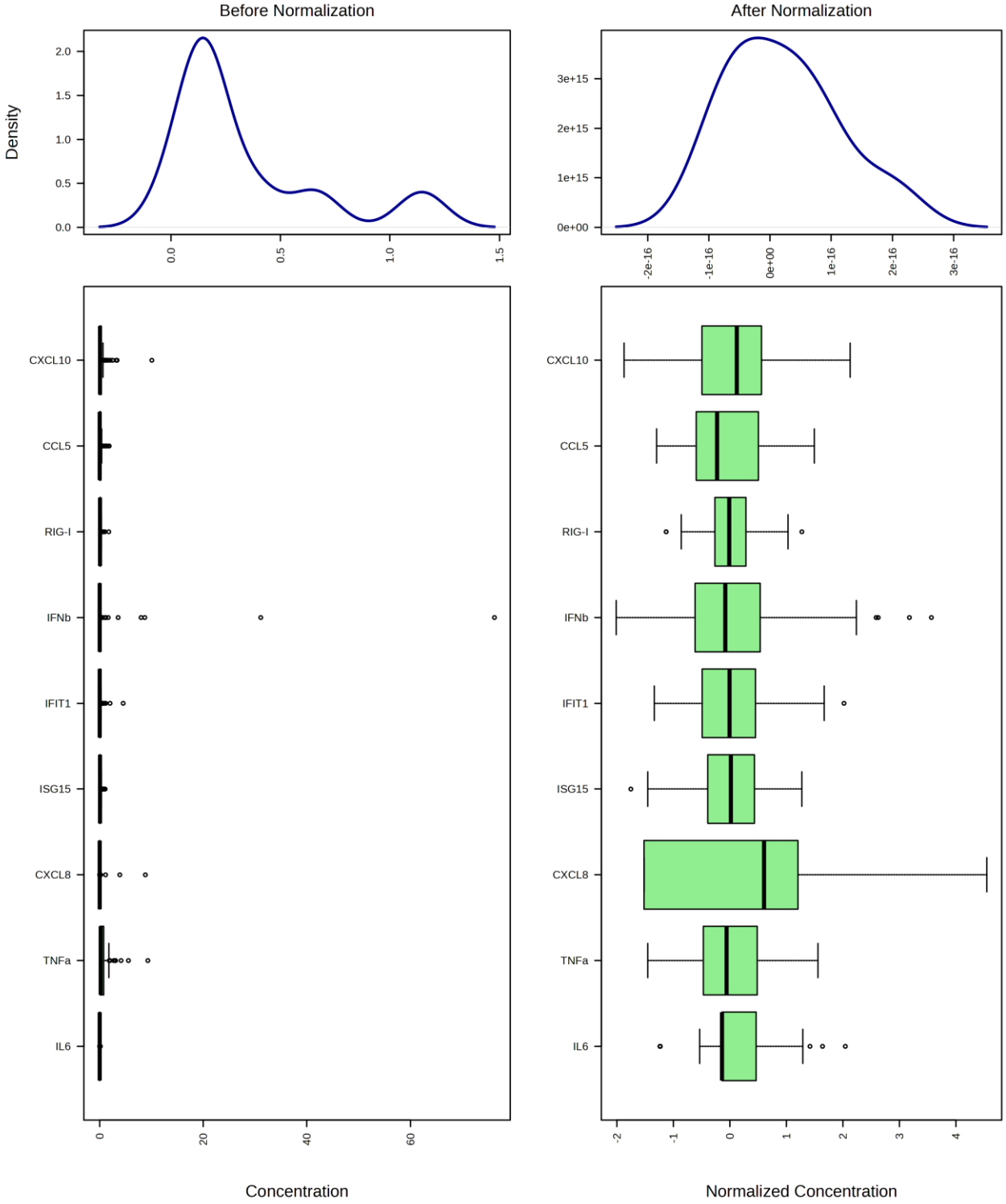
	0	**1**	**2**	**3**
Wheezing	No	End of exhalation	During exhalation	Exhalation and inspiration
Retractions	No	Subcostal or intercostal	Supraclavicular and nasal flaring	Suprasternal and intercostal
Air intake	Normal and symmetrical	Reduced and symmetrical	Very reduced	Silent
Cyanosis	No	Present		
Respiratory rate	<30	31-45	46-60	>60
Heart rate	<120	>120		

Supplementary Table 2. Summary of variables included in the Sant Joan de Déu Bronchiolitis score (BROSJDD). This BROSJDD score ranges from 1 to 16, stratifying the population into mild (≤5), moderate (6-10), and severe (≥11) bronchiolitis.

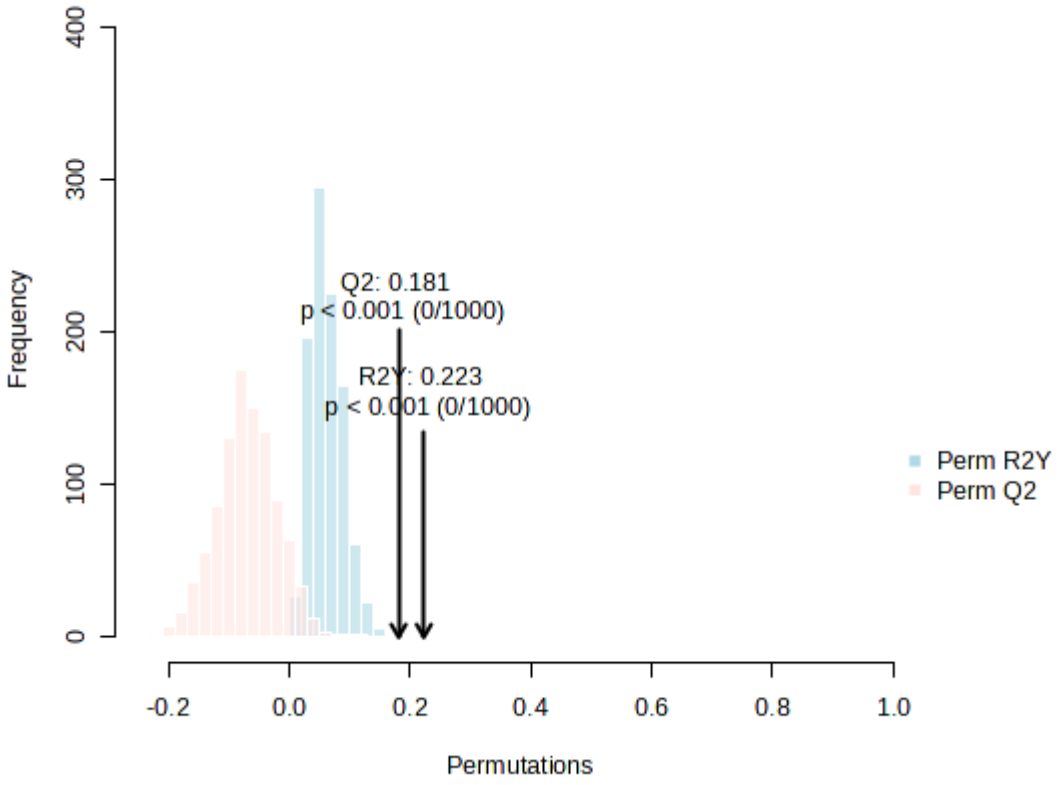
Wheezing/rales	0: No 1: expiratory wheezing, inspiratory rales 2: expiratory and inspiratory wheezing/rales			
Retraction	0: No 1: Subcostal, Lower Intercostal 2: Subcostal, Lower Intercostal + supraclavicular + nasal flaring 3: Subcostal, Lower Intercostal + supraclavicular + nasal flaring + Upper Intercostal + Suprasternal			
Air intake	0: Normal 1: Reduced and symmetrical 2: Asymmetrical 3: Very reduced			
Oxygen saturation	Without supplementary oxygen: 0: ≥95% 1: 91-94% 2: ≤90%		With supplementary oxygen: 1: >94% with FiO2≤40% 2:≤94% with FiO2>40%	
Respiratory rate	0 <3 m: <40 3-12m:<30 12-24m: <30	1 40-60 30-50 30-40	2 60-70 50-60 40-50	3 >70 >60 >50
Heart rate	0 <1 y: <130 1-2 y:<110	1 130-150 110-120	2 150-170 120-140	3 >170 >140

Abbreviation: FiO2, inspired fraction of oxygen: m, months old; y, years old.

Supplementary Figure 1. Normalization of gene expression of *IL6, TNFα, CXCL8, ISG15, IFIT1, RIG-I, IFNβ, CCL5*, and *CXCL10* in peripheral blood in RSV-infected children. **Statistics**: Gene expression values were normalized using log-transformation (log_{10}) and scaling by mean centering using MetaboAnalyst 6.0 (https://www.metaboanalyst.ca/). **Abbreviations**: RSV, respiratory syncytial virus; IL6, Interleukin 6; TNFα, Tumor necrosis factor-alpha; CXCL8, Chemokine C-X-C motif ligand 8; ISG15, Interferon-stimulated gene 15; IFIT1, Interferon-induced protein with tetratricopeptide repeats 1; RIGI, Retinoic acid-inducible gene I; IFNβ, Interferon-β1; CCL5, Chemokine C-C motif ligand 5; CXCL10, Chemokine C-X-C motif ligand 10.



Supplementary Figure 2. Permutation plot for validation of the OPLS-DA model. **Statistics**: A permutation test was used to confirm the validity of the OPLS-DA model, with a permutation number of 1000, using MetaboAnalyst 6.0 (https://www.metaboanalyst.ca/). R2Y represents the model interpretation rate; Q2 indicates the predictive ability of the model; R2Y and Q2, closer to 1, indicate that the model is more stable and reliable. **Abbreviations**: OPLS-DA, orthogonal partial least squares discriminant analysis; p-value, level of significance.



Supplementary Figure 3. VIP values summary of gene expression in peripheral blood for severe hypoxemia (SpO_2 ≤90%) in RSV-infected children. **Statistics**: Data were calculated using an OPL-DA. **Abbreviations**: VIP, Variable importance in projection; RSV, respiratory syncytial virus; SpO_2; saturation of peripheral oxygen; OPLS-DA, orthogonal partial least squares discriminant analysis; IL6, Interleukin 6; TNFα, Tumor necrosis factor-alpha; CXCL8, Chemokine C-X-C motif ligand 8; ISG15, Interferon-stimulated gene 15; IFIT1, Interferon-induced protein with tetratricopeptide repeats 1; RIGI, Retinoic acid-inducible gene I; IFNβ, Interferon-β1; CCL5, Chemokine C-C motif ligand 5; CXCL10, Chemokine C-X-C motif ligand 10.