

**Supplementary Table S1.** Summary statistics of TFV loop parameters in the 899 included three-month-old infants, as well as infants with lower  $t_{PTEF}/t_E$  and  $t_{PTEF}$ .

Characteristics	Mean (SD)	Median (IQR; min-max)	Mean (SD)	Median (IQR; min-max)	Mean (SD)	Median (IQR; min-max)
Infants with TFV loops (n=899)			Lower $t_{PTEF}/t_E$ <sup>(a)</sup> (n=48)		Lower $t_{PTEF}$ <sup>(a)</sup> (n=223)	
$t_{PTEF}/t_E$	0.39 (0.08)	0.39 (0.12; 0.19-0.63)	0.23 (0.02)	0.24 (0.02; 0.19-0.24)	0.34 (0.08)	0.34 (0.11; 0.19-0.54)
$t_{PTEF}$	0.21 (0.05)	0.20 (0.06; 0.11-0.45)	0.16 (0.04)	0.15 (0.05; 0.12-0.26)	0.15 (0.01)	0.15 (0.02; 0.11-0.17)

<sup>(a)</sup> Lower  $t_{PTEF}/t_E$  and  $t_{PTEF}$  equal to a  $t_{PTEF}/t_E < 0.25$  and a  $t_{PTEF} < 0.17$  seconds (<25<sup>th</sup> percentile), respectively.  $t_{PTEF}/t_E$ : time to peak tidal expiratory flow to total expiratory time;  $t_{PTEF}$ : time to peak tidal expiratory flow

**Supplementary Table S2.** 1,2. Linear regression models of high TEWL, eczema, *FLG* mutations on the continuous  $t_{PTEF}/t_E$  (2.1) and  $t_{PTEF}$  (2.2), in the 899 three-month-old infants.

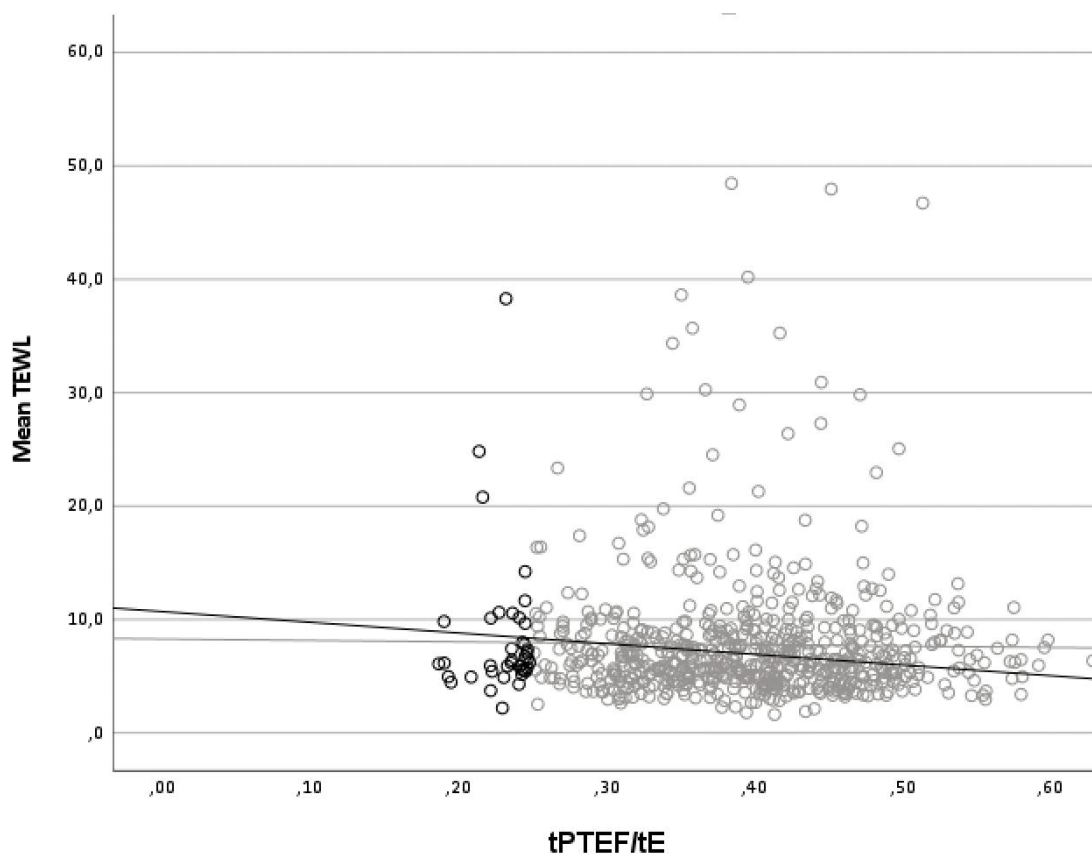
Characteristics	Crude $\beta$ (95% CI)	<i>p</i> -Value	Adjusted $\beta$ (95% CI)	<i>p</i> -Value <sup>(a)</sup>
<b>Supplementary Table S2.1.</b> Continuous $t_{PTEF}/t_E$				
High TEWL <sup>(b)</sup>	0.00 (-0.01, 0.02)	0.689	-0.01 (-0.02, 0.01)	0.357
Eczema	0.00 (-0.01, 0.02)	0.559	0.00 (-0.02, 0.02)	0.861
<i>FLG</i> mutations	0.01 (-0.01, 0.03)	0.260	0.00 (-0.02, 0.03)	0.807
<b>Supplementary Table S2.2.</b> Continuous $t_{PTEF}$				
High TEWL <sup>(b)</sup>	-0.01 (-0.01, 0.00)	0.205	-0.01 (-0.20, -0.00)	<b>0.029</b>
Eczema	-0.00 (-0.01, 0.01)	0.607	-0.01 (-0.02, 0.01)	0.373
<i>FLG</i> mutations	0.01 (-0.01, 0.02)	0.246	0.00 (-0.01, 0.02)	0.603

<sup>(a)</sup> Models adjusted for parental asthma, high parental education ( $\geq 4$  years of university studies), nicotine exposure in pregnancy, sex, GA, weight at three months of age and the skin intervention. <sup>(b)</sup> High TEWL equal to a mean TEWL  $> 8.83$  g/m<sup>2</sup>/h (>75<sup>th</sup> percentile). TEWL: transepidermal waterloss; *FLG*: Filaggrin;  $t_{PTEF}/t_E$ : time to peak tidal expiratory flow to total expiratory time;  $t_{PTEF}$ : time to peak tidal expiratory flow.

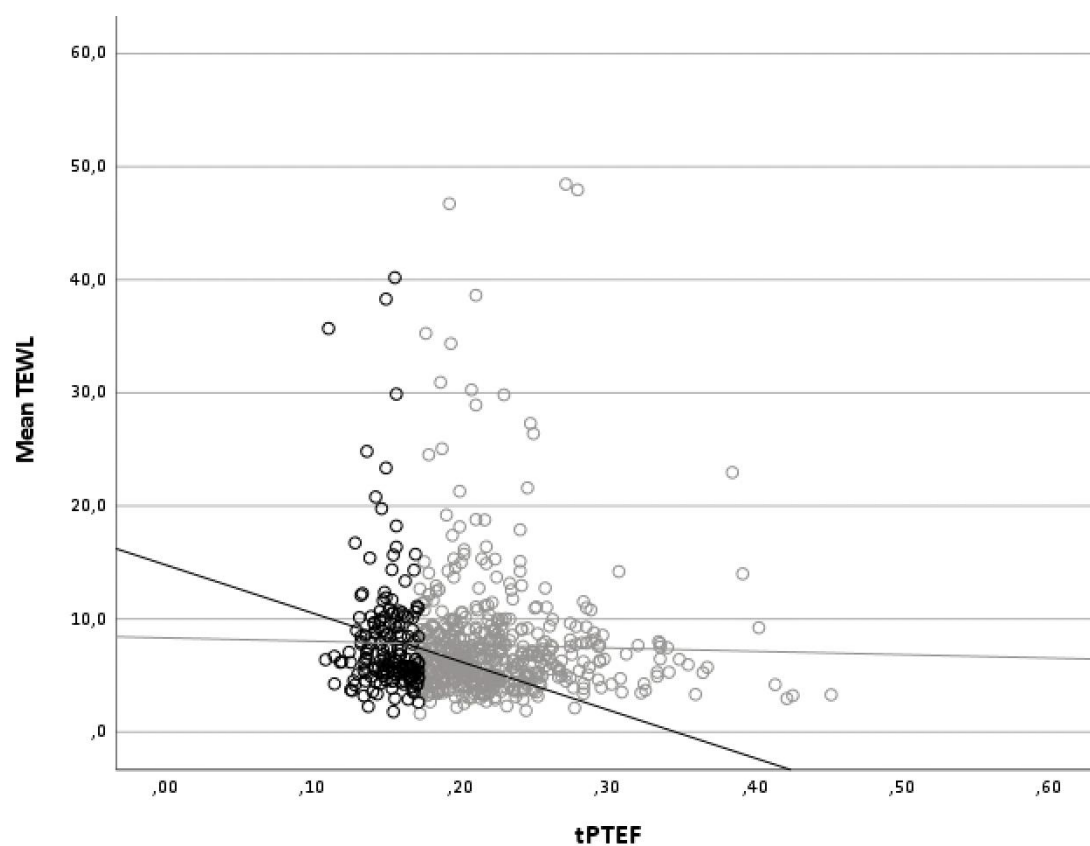
**Supplementary Table S3. 1,2.** Interaction effects in logistic regression models of high TEWL, eczema, *FLG* mutations and the skin intervention on lower  $t_{PTEF}/t_E$  (3.1) and  $t_{PTEF}$  (3.2), in the 899 three-month-old infants.

Characteristics	Crude OR (95% CI)	<i>p</i> -Value	Adjusted OR (95% CI)	<i>p</i> -Value <sup>(a)</sup>
<b>Supplementary Table S3.1. Lower <math>t_{PTEF}/t_E</math> <sup>(b)</sup></b>				
High TEWL <sup>(c)</sup> × Skin intervention	0.39 (0.63, 1.39)	0.412	2.54 (0.52, 12.5)	0.250
Eczema × Skin intervention	0.93 (0.28, 3.08)	0.902	0.53 (0.08, 3.51)	0.530
<i>FLG</i> mutations × Skin intervention	0.48 (0.06, 3.58)	0.473	0.31 (0.02, 4.13)	0.378
<b>Supplementary Table S3.2. Lower <math>t_{PTEF}</math> <sup>(b)</sup></b>				
High TEWL <sup>(c)</sup> × Skin intervention	1.02 (0.65, 1.62)	0.924	0.67 (0.30, 1.50)	0.328
Eczema × Skin intervention	1.11 (0.61, 2.00)	0.734	1.33 (0.51, 3.47)	0.557
<i>FLG</i> mutations × Skin intervention	0.99 (0.46, 2.15)	0.990	0.70 (0.19, 2.55)	0.589

<sup>(a)</sup> Models adjusted for parental asthma, high parental education ( $\geq 4$  years of university studies), nicotine exposure in pregnancy, sex, GA and weight at three months of age. <sup>(b)</sup> Lower  $t_{PTEF}/t_E$  and  $t_{PTEF}$  equal to a  $t_{PTEF}/t_E < 0.25$  and a  $t_{PTEF} < 0.17$  seconds ( $< 25^{\text{th}}$  percentile), respectively. <sup>(c)</sup> High TEWL equal to a mean TEWL  $> 8.83$  g/m<sup>2</sup>/h ( $> 75^{\text{th}}$  percentile). TEWL: transepidermal waterloss; *FLG*: Filaggrin;  $t_{PTEF}/t_E$ : time to peak tidal expiratory flow to total expiratory time;  $t_{PTEF}$ : time to peak tidal expiratory flow



(a)



(b)

**Supplementary Figure S1.** (a,b). The distribution of the mean TEWL and the continuous  $t_{PTEF}/t_E$  (a) as well as  $t_{PTEF}$  (b) at three months of age. Black dots represent infants with lower  $t_{PTEF}/t_E$  and  $t_{PTEF}^{(a)}$ , respectively.

<sup>(a)</sup> Lower  $t_{PTEF}/t_E$  and  $t_{PTEF}$  equal to a  $t_{PTEF}/t_E < 0.25$  and a  $t_{PTEF} < 0.17$  seconds (<25<sup>th</sup> percentile), respectively

TEWL: transepidermal waterloss;  $t_{PTEF}/t_E$ : time to peak tidal expiratory flow to total expiratory time;  $t_{PTEF}$ : time to peak tidal expiratory flow