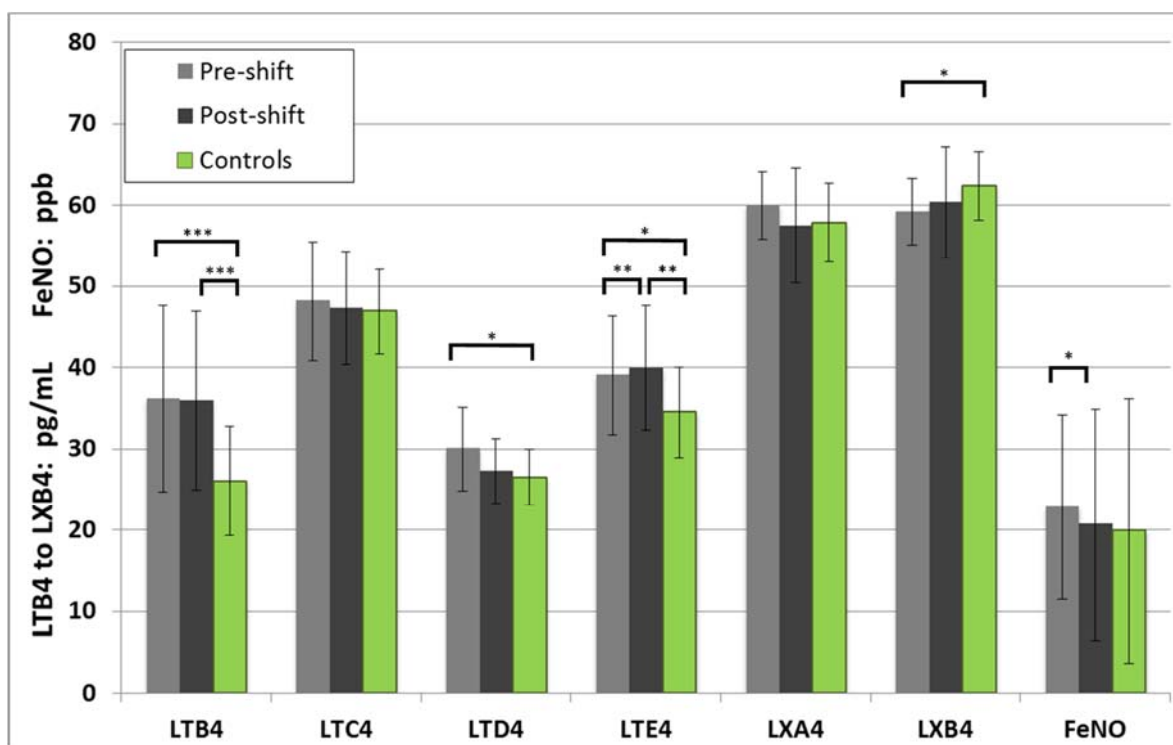
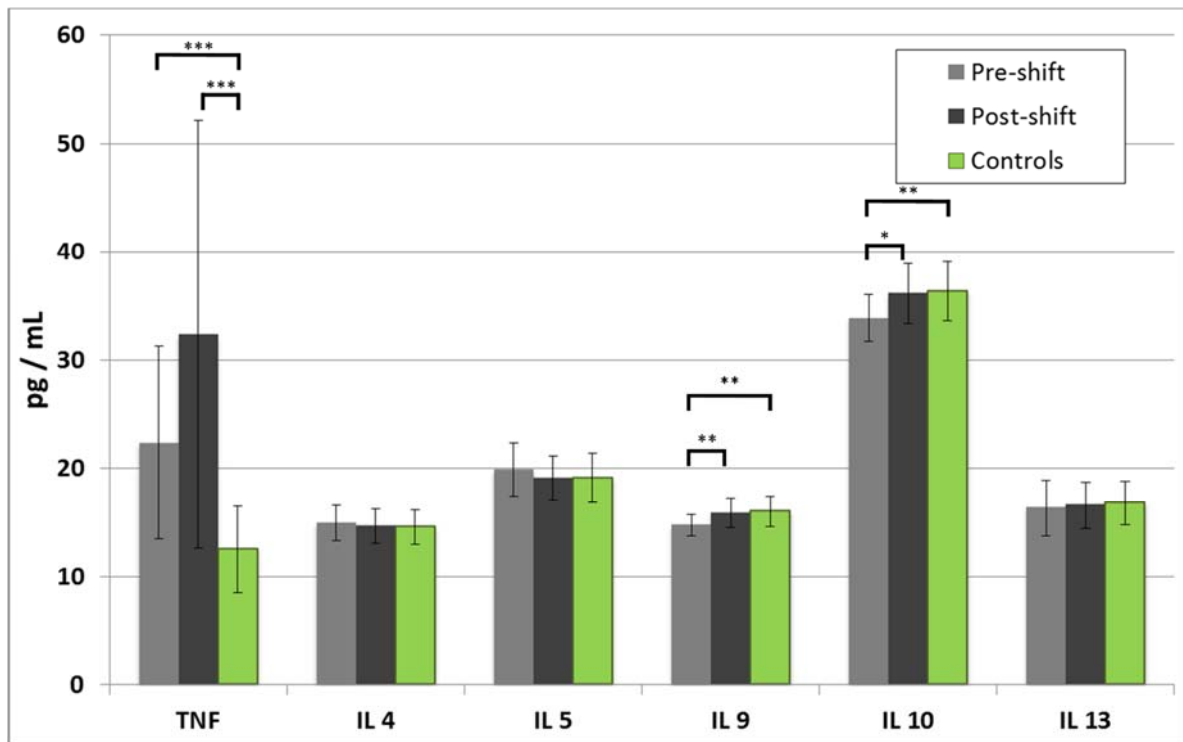


**Figure S1.** Comparison of mean pre- and post-shift levels of inflammatory markers leukotrienes (LT) LTB<sub>4</sub>, LTC<sub>4</sub>, LTD<sub>4</sub>, LTE<sub>4</sub>, anti-inflammatory markers lipoxins (LX) (LXA<sub>4</sub>, LXB<sub>4</sub>), and fractional exhaled nitric oxide (FeNO) in the exhaled breath condensate of 20 nanocomposite synthesis workers relative to 21 controls. \*(p<0.05) \*\* (p<0.01) \*\*\* (p<0.001).



**Figure S2:** Comparison of mean pre- and post-shift levels of pro-inflammatory cytokines tumor necrosis factor (TNF), interleukins (IL) IL 5, IL 9 and anti-inflammatory IL 4, IL 10, and IL 13 in the exhaled breath condensate of 20 nanocomposite synthesis workers compared with 21 controls. \*(p<0.05) \*\* (p<0.01) \*\*\* (p<0.001)



**Table S1** Correlations of pre-shift and post-shift EBC markers with selected characteristics, exposure parameters and respiratory symptoms in the workers exposed to nanocomposites.

| Characteristics                                       | Pre-shift marker, correlation, p                                   | Post-shift marker, correlation, p          |
|-------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------|
| Employment in nanocomposites production (years)       | TNF, 0.473 (0.035)                                                 | LXB4, -0.449 (0.047)                       |
| Acute bronchitis/ bronchopneumonia in past five years | LTB4, 0.451 (0.046)<br>LTC4, 0.503 (0.024)<br>LXB4, -0.451 (0.046) | LTB4, 0.451 (0.046)<br>LTC4, 0.502 (0.024) |
| Allergic rhinitis                                     | pH, -0.455 (0.044)                                                 | pH, -0.483 (0.031)                         |
| Chronic bronchitis                                    | pH, -0.467 (0.038)                                                 | pH, -0.543 (0.013)                         |
| Cough                                                 | pH, -0.481 (0.032)                                                 | pH, -0.582 (0.007)                         |
| Dyspnea (NYHA class II)                               | LTC4, 0.465 (0.039)                                                | LTC4, 0.464 (0.039)                        |

**Table S2:** Correlations of the pre-shift (1-) and post-shift (2-) inflammation markers leukotriene (LT) B4 and tumor necrosis factor (TNF) in the exhaled breath condensate (EBC) of the workers with inflammation markers LTC4, fractional exhaled nitric oxide (FeNO), and anti-inflammatory lipoxins (LXA4, LXB4).

| Marker 1 | Marker 2     | Correlation Coefficient | Sig. (2-tailed) |
|----------|--------------|-------------------------|-----------------|
| LTB4     | Other Marker |                         |                 |
| 1-LTB4   | 1-LTC4       | 0.571                   | 0.009           |
| 1-LTB4   | 1-LXB4       | -0.472                  | 0.036           |
| 1-LTB4   | 1-TNF        | 0.781                   | 0.000           |
| 1-LTB4   | 2-LTC4       | 0.474                   | 0.035           |
| 2-LTB4   | 1-LTB4       | 0.976                   | 0.000           |
| 2-LTB4   | 1-LTC4       | 0.537                   | 0.015           |
| 2-LTB4   | 1-LXB4       | -0.462                  | 0.040           |
| 2-LTB4   | 1-TNF        | 0.771                   | 0.000           |
| TNF      | Other Marker |                         |                 |
| 1-TNF    | 1-LTB4       | 0.781                   | 0.000           |
| 1-TNF    | 1-LTC4       | 0.627                   | 0.003           |
| 1-TNF    | 1-LXB4       | -0.573                  | 0.008           |
| 1-TNF    | 2-LTB4       | 0.771                   | 0.000           |
| 1-TNF    | 2-LTC4       | 0.516                   | 0.020           |
| 2-TNF    | 2 FeNO       | 0.545                   | 0.013           |
| 2-TNF    | 2-IL 9       | -0.532                  | 0.016           |

**Table S3:** Correlations between the markers of inflammation and markers of oxidative stress in the exhaled breath condensate of the workers.

| Pre-shift  | MDA                       | HNE           | HHE                      | C6-C13                    | 8-iso                    | 8-OHdG                    | 8-OHG                     | 5-OHMeU                  | o-Tyr                    | 3-ClTyr                  | 3-NOTyr       |
|------------|---------------------------|---------------|--------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--------------------------|---------------|
| LTB4       | -0.359                    | 0.013         | 0.056                    | 0.111                     | 0.039                    | <b>0.632<sup>b</sup></b>  | <b>0.586<sup>b</sup></b>  | <b>0.640<sup>b</sup></b> | <b>0.776<sup>c</sup></b> | <b>0.637<sup>b</sup></b> | -0.028        |
| LTC4       | -0.030                    | 0.123         | 0.183                    | 0.317                     | 0.066                    | 0.414                     | 0.402                     | 0.290                    | 0.217                    | <b>0.558<sup>b</sup></b> | 0.077         |
| LTD4       | 0.382                     | 0.150         | <b>0.501<sup>a</sup></b> | <b>0.485<sup>a</sup></b>  | 0.129                    | 0.268                     | 0.223                     | -0.203                   | -0.231                   | 0.079                    | -0.307        |
| LXB4       | <i>0.103</i>              | <i>-0.101</i> | <i>-0.416</i>            | <i>-0.361</i>             | <i>-0.365</i>            | <b>-0.698<sup>c</sup></b> | <b>-0.480<sup>a</sup></b> | <i>-0.398</i>            | <i>-0.345</i>            | <i>-0.383</i>            | <i>0.067</i>  |
| TNF        | <b>-0.480<sup>a</sup></b> | 0.290         | 0.204                    | 0.161                     | -0.066                   | <b>0.707<sup>c</sup></b>  | <b>0.503<sup>a</sup></b>  | <b>0.790<sup>c</sup></b> | <b>0.577<sup>b</sup></b> | <b>0.781<sup>c</sup></b> | 0.142         |
| IL 4       | <i>-0.376</i>             | <i>0.064</i>  | <i>-0.078</i>            | <b>-0.496<sup>a</sup></b> | <i>-0.169</i>            | <i>0.172</i>              | <i>0.005</i>              | <i>0.106</i>             | <i>-0.044</i>            | <i>0.178</i>             | <i>0.108</i>  |
| IL 5       | 0.235                     | -0.201        | 0.356                    | <b>0.478<sup>a</sup></b>  | 0.236                    | 0.340                     | 0.291                     | 0.041                    | 0.248                    | -0.032                   | -0.384        |
|            |                           |               |                          |                           |                          |                           |                           |                          |                          |                          |               |
| Post-shift | MDA                       | HNE           | HHE                      | C6-C13                    | 8-iso                    | 8-OHdG                    | 8-OHG                     | 5-OHMeU                  | o-Tyr                    | 3-ClTyr                  | 3-NOTyr       |
| LTB4       | -0.193                    | 0.032         | 0.050                    | 0.175                     | 0.214                    | 0.332                     | <b>0.611<sup>b</sup></b>  | 0.401                    | <b>0.792<sup>c</sup></b> | <b>0.667<sup>b</sup></b> | -0.064        |
| LTC4       | -0.063                    | 0.123         | 0.091                    | 0.369                     | 0.094                    | 0.139                     | 0.241                     | 0.142                    | 0.134                    | <b>0.473<sup>a</sup></b> | 0.097         |
| LXA4       | <i>-0.112</i>             | <i>-0.140</i> | <i>-0.206</i>            | 0.338                     | <b>0.462<sup>a</sup></b> | <i>0.095</i>              | <i>0.131</i>              | <i>0.341</i>             | <i>0.246</i>             | <i>0.089</i>             | <i>-0.189</i> |

|             |        |        |        |        |        |        |       |                          |       |       |                          |
|-------------|--------|--------|--------|--------|--------|--------|-------|--------------------------|-------|-------|--------------------------|
| <b>FeNO</b> | 0.098  | 0.173  | -0.041 | 0.040  | -0.046 | 0.280  | 0.245 | <b>0.458<sup>a</sup></b> | 0.307 | 0.258 | -0.392                   |
| <b>IL5</b>  | -0.139 | -0.170 | -0.074 | -0.128 | 0.278  | -0.197 | 0.089 | -0.031                   | 0.378 | 0.215 | <b>0.448<sup>a</sup></b> |

Significant correlations are in bold, <sup>a</sup> (p < 0.05), <sup>b</sup> (p < 0.01), <sup>c</sup> (p < 0.001); anti-inflammatory markers (LX, IL 4) are in italics.

LT=leukotriene, LX= lipoxin, TNF= tumor necrosis factor, IL= interleukin, FeNO= fractional exhaled nitric oxide, MDA=malondialdehyde, HNE=4-hydroxy-trans-nonenal, HHE=4-hydroxy-trans-hexenal, C6-13 =aldehydes C6-C13, 8-iso=8-isoProstaglandin F2 $\alpha$ , 8-OHdG=8-hydroxy-2-deoxyguanosine, 8-OHG=8-hydroxyguanosine, 5-OHMeU=5-hydroxymethyl uracil, o-Tyr=o-tyrosine, 3-CITyr= 3-NOTyr=3-nitrotyrosine.