

Table S1. Alveolar macrophage and nanoparticle/fiber count in the lung.

| Group | Alveolar macrophage count (number/cm ² of lung tissue) | | Particle /fiber count (number x 10 ³ /cm ² of lung tissue) | |
|--|--|------------|--|------------|
| | 6 hr | 4 wk | 6 hr | 4 wk |
| Untreated | 5.53±0.50 | 5.58±0.90 | - | - |
| Saline | 8.98±0.91 | 7.54±0.87 | - | - |
| Saline plus PF68 | 11.30±2.37 | 9.34±0.38 | - | - |
| a-nTiO ₂ | 13.06±1.89 | 11.60±0.99 | 11.93±1.057 | 1.39±0.59 |
| r-nTiO ₂ | 11.64±3.14 | 11.38±2.59 | 11.52±0.329 | 0.69±0.35 |
| POT | 36.05±2.44 | 16.25±1.62 | 28.43±2.452 | 15.16±4.05 |
| P values between the POT group and other groups | | | | |
| POT & Untreated | < 0.001 | < 0.001 | - | - |
| POT & Saline plus PF68 | < 0.001 | < 0.001 | - | - |
| POT & a-nTiO ₂ | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| POT & r-nTiO ₂ | < 0.001 | < 0.01 | < 0.001 | < 0.001 |

a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S2. Proliferating cell nuclear antigen (PCNA) staining of lung tissue and visceral mesothelial cells.*

| Group | Pulmonary PCNA index | | Pleural PCNA index | |
|---|----------------------|-------------|--------------------|-----------|
| | 6 hr | 4 wk | 6 hr | 4 wk |
| Untreated | 11.53±4.38 | 11.13±2.16 | 0.68±0.01 | 0.68±0.03 |
| Saline | 11.00±1.74 | 8.89±6.21 | 1.82±0.07 | 0.85±0.06 |
| Saline plus PF68 | 13.05±5.32 | 10.70±0.37 | 2.30±0.43 | 0.96±0.02 |
| a-nTiO ₂ | 25.43±8.77 | 28.00±11.96 | 3.49±0.34 | 1.12±0.27 |
| r-nTiO ₂ | 15.93±2.96 | 12.27±4.01 | 2.15±0.43 | 0.96±0.21 |
| POT | 35.30±6.10 | 41.67±3.08 | 4.62±0.99 | 5.90±1.90 |
| P values between the POT group and other groups | | | | |
| POT & Untreated | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| POT & Saline plus PF68 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| POT & a-nTiO ₂ | < 0.01 | < 0.01 | 0.01 | < 0.01 |
| POT & r-nTiO ₂ | < 0.001 | < 0.001 | < 0.001 | < 0.001 |

*Percentage of PCNA positive cells (mean ± SEM)

a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S3. Proinflammatory cytokine gene expression.*

| Group | CCL2 | | CCL3 | | CCL4 | |
|---|--------------|-------------|------------|------------|--------------|------------|
| | 6 hr | 4 wk | 6 hr | 4 wk | 6 hr | 4 wk |
| Untreated | 251.23±65.43 | 50.57±6.28 | 9.75±0.54 | 17.71±0.97 | 40.55±2.65 | 2.67±0.54 |
| Saline | 331.75±16.53 | 53.28±3.58 | 13.25±1.43 | 13.69±1.56 | 60.54±3.76 | 4.57±0.97 |
| Saline plus PF68 | 310.06±15.43 | 38.44±11.54 | 18.21±1.76 | 15.83±1.56 | 32.75±2.45 | 2.69±0.05 |
| a-nTiO ₂ | 301.68±51.23 | 40.08±4.68 | 12.52±4.06 | 17.46±4.57 | 94.03±6.35 | 3.079±0.67 |
| r-nTiO ₂ | 542.16±93.19 | 47.67±7.54 | 8.44±0.87 | 18.86±1.97 | 101.64±10.51 | 10.82±0.13 |
| POT | 180.53±10.01 | 89.84±13.54 | 32.8±6.97 | 19.39±3.48 | 59.36±3.54 | 7.53±0.49 |
| P values between the POT group and other groups | | | | | | |
| POT & Untreated | 0.684 | < 0.01 | < 0.001 | 0.876 | < 0.01 | < 0.001 |
| POT & Saline plus PF68 | 0.0834 | < 0.001 | < 0.001 | 0.771 | < 0.05 | < 0.001 |
| POT & a-nTiO ₂ | 0.354 | < 0.001 | < 0.001 | 0.985 | 0.548 | < 0.001 |
| POT & r-nTiO ₂ | < 0.05 | < 0.001 | < 0.001 | 0.899 | 0.685 | < 0.01 |

*RNA is expression in arbitrary units relative to beta-actin (mean ± SEM)

a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S4. CCL2 protein expression.

| Group | CCL2 (pg/mg lung tissue) | |
|---------------------------|--------------------------|------------|
| | 6 hr | 4 wk |
| Untreated | 10.69±3.01 | 22.14±3.09 |
| Saline | 13.70±6.87 | 20.89±5.80 |
| Saline plus PF68 | 12.32±6.69 | 17.38±1.79 |
| a-nTiO ₂ | 13.82±9.62 | 18.62±6.87 |
| r-nTiO ₂ | 27.35±5.06 | 18.11±4.14 |
| POT | 11.82±4.95 | 31.92±8.28 |
| POT & Untreated | 0.59 | < 0.05 |
| POT & Saline plus PF68 | 0.69 | < 0.001 |
| POT & a-nTiO ₂ | 0.88 | < 0.01 |
| POT & r-nTiO ₂ | < 0.01 | < 0.01 |

a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S5. Lung tissue oxidant parameters.*

| Group | TOS | | TAC | | OSI | |
|--|-------------|------------|-----------|-----------|------------|-----------|
| | 6 hr | 4 wk | 6 hr | 4 wk | 6 hr | 4 wk |
| Untreated | 12.49±2.04 | 13.18±3.30 | 3.45±0.29 | 3.80±0.38 | 3.69±0.87 | 3.48±3.30 |
| Saline | 13.35±1.80 | 12.97±1.85 | 3.81±0.21 | 3.53±0.26 | 3.49±0.35 | 3.70±1.85 |
| Saline plus PF68 | 14.23±1.81 | 13.35±2.14 | 3.71±0.36 | 3.70±0.39 | 3.83±0.42 | 3.59±2.14 |
| a-nTiO ₂ | 37.15±15.79 | 16.69±4.64 | 3.35±0.34 | 3.42±0.60 | 10.88±3.72 | 4.89±4.64 |
| r-nTiO ₂ | 20.81±8.83 | 13.23±2.75 | 3.26±0.14 | 3.65±0.27 | 6.40±2.72 | 3.63±2.75 |
| POT | 34.71±14.16 | 28.57±4.44 | 3.58±0.35 | 3.66±0.27 | 9.64±3.56 | 7.89±4.44 |
| P values between the POT group and other groups | | | | | | |
| POT & Untreated | < 0.001 | < 0.001 | 0.20 | 0.24 | < 0.001 | < 0.001 |
| POT & Saline plus PF68 | <0.001 | < 0.001 | 0.24 | 0.42 | < 0.001 | < 0.001 |
| POT & a-nTiO ₂ | 0.37 | < 0.001 | 0.10 | 0.19 | 0.25 | < 0.01 |
| POT & r-nTiO ₂ | < 0.05 | < 0.001 | < 0.05 | 0.46 | < 0.05 | < 0.001 |

*Total oxidant status (TOS) is expressed as $\mu\text{mol H}_2\text{O}_2$ equivalents per gram of tissue, total antioxidant capacity (TAC) is expressed as $\mu\text{mol Trolox}$ equivalents per gram of tissue, and Oxidative stress index (OSI) is expressed as the ratio of TOS to TAC.

a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S6. LDH, ALP, and total protein in the bronchioalveolar lavage at 4 wk.

| Group | LDH activity (U/L) | ALP activity (μ unit/l) | Total Protein (μ g/ml) |
|---|----------------------|------------------------------|-----------------------------|
| Untreated | 909.35 \pm 323.81 | 148.71 \pm 11.69 | 117.87 \pm 19.37 |
| Saline | 927.94 \pm 369.06 | 161.73 \pm 19.31 | 119.08 \pm 10.67 |
| Saline plus PF68 | 794.06 \pm 246.86 | 139.34 \pm 13.08 | 106.00 \pm 8.20 |
| a-nTiO ₂ | 2132.88 \pm 781.94 | 455.49 \pm 33.10 | 131.25 \pm 29.98 |
| r-nTiO ₂ | 1130.16 \pm 609.08 | 245.37 \pm 10.44 | 125.09 \pm 13.69 |
| POT | 2243.05 \pm 515.44 | 526.58 \pm 139.09 | 135.75 \pm 17.63 |
| P values between the POT group and other groups | | | |
| POT & Untreated | <0.001 | <0.001 | 0.088 |
| POT & Saline plus PF68 | <0.01 | <0.001 | <0.05 |
| POT & a-nTiO ₂ | 0.410 | 0.179 | 0.402 |
| POT & r-nTiO ₂ | <0.05 | <0.01 | 0.188 |

LDH: Lactate dehydrogenase; ALP: alkaline phosphatase; a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.

Table S7. LDH and total protein in the pleural cavity lavage.

| Group | LDH activity (U/L) | | Total Protein (μ g/ml) | |
|---|---------------------|----------------------|-----------------------------|---------------------|
| | 6 hr | 4 wk | 6 hr | 4 wk |
| Untreated | 963.11 \pm 432.80 | 1056.31 \pm 308.29 | 64.95 \pm 48.18 | 105.36 \pm 52.33 |
| Saline | 696.43 \pm 202.25 | 1076.35 \pm 455.17 | 87.13 \pm 12.79 | 89.24 \pm 69.05 |
| Saline plus PF68 | 682.99 \pm 420.35 | 918.20 \pm 329.32 | 81.97 \pm 17.12 | 106.92 \pm 33.25 |
| a-nTiO ₂ | 697.67 \pm 99.18 | 1815.12 \pm 611.04 | 127.49 \pm 46.89 | 289.83 \pm 140.56 |
| r-nTiO ₂ | 741.08 \pm 203.16 | 1515.50 \pm 747.41 | 98.97 \pm 51.28 | 160.32 \pm 27.56 |
| POT | 751.01 \pm 92.82 | 1876.58 \pm 729.54 | 130.96 \pm 60.59 | 218.59 \pm 109.46 |
| P values between the POT group and other groups | | | | |
| POT & Untreated | 0.098 | <0.01 | 0.304 | 0.235 |
| POT & Saline plus PF68 | 0.219 | <0.01 | 0.368 | <0.05 |
| POT & a-nTiO ₂ | 0.207 | 0.438 | 0.190 | 0.452 |
| POT & r-nTiO ₂ | 0.297 | 0.208 | 0.233 | 0.159 |

LDH: Lactate dehydrogenase; a-nTiO₂: anatase type titanium dioxide nanoparticles; r-nTiO₂: rutile type titanium dioxide nanoparticles; POT: potassium octatitanate fibers.