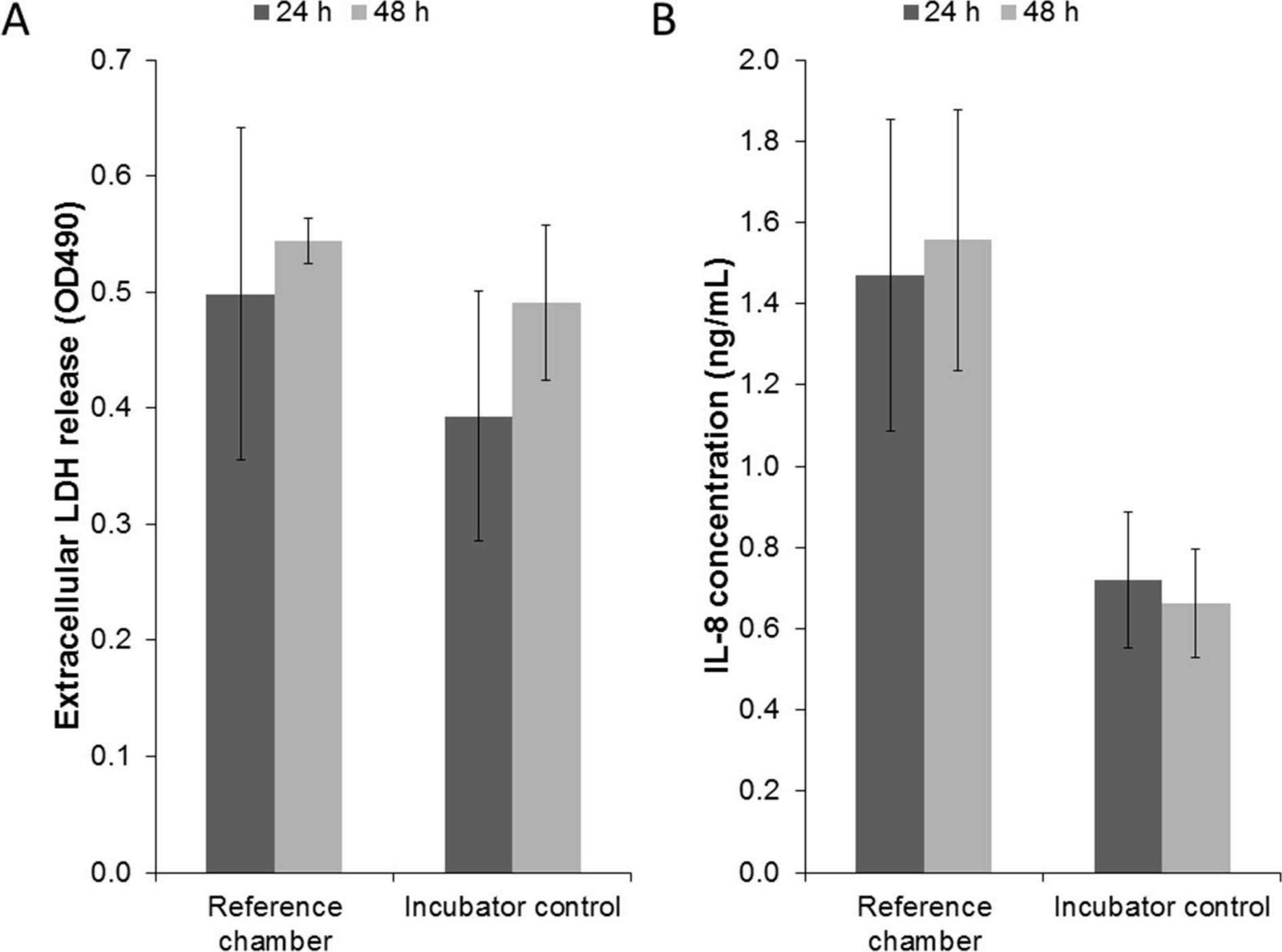
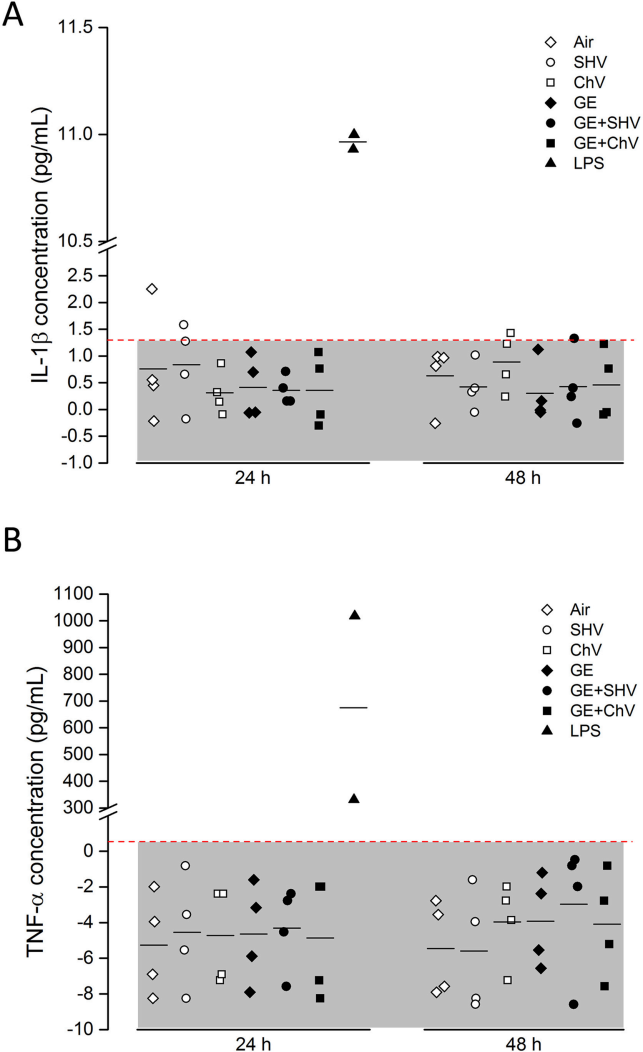
SI Fig. 1. Comparison of multicellular lung model responses for the filtered air (reference) exposure and untreated (incubator) control. A) Lactate dehydrogenase (LDH) and B) interleukin-8 (IL-8) release in the culture medium after 24 h and 48 h. The reference chamber culture was exposed to filtered air and incubated (37 °C, 5% CO2) as detailed in the main text (Section 2.6). The untreated (incubator) control was kept in the incubator (37 °C, 5% CO2) throughout the entire experiment, with the supernatant collected (at 24 h and 48 h) and analysed identically. Both cultures were maintained at ALI throughout the 48-h experiment.

SI Fig. 2. Release of (pro-)inflammatory mediators in the multicellular lung model following combined exposure to gasoline exhaust and volcanic ash. A) Interleukin-1 beta (IL-1β) and B) Tumor necrosis factor-alpha (TNF-α) release in the culture medium after 24 h and 48 h following exposures to filtered air (reference exposure), (filtered air and) Soufrière Hills ash (SHV), (filtered air and) Chaitén ash (ChV), gasoline exhaust (GE), combined exposure to gasoline exhaust and Soufrière Hills ash (GE + SHV) and combined exposure to gasoline exhaust and Chaitén ash (GE + ChV). The positive assay control was lipopolysaccharide (LPS; 1 µg/mL, 24 h). The red dashed line denotes the method detection limit (MDL; 1.30 and 0.55 pg/mL for IL-1β and TNF-α, respectively). Grey background covers the data below the MDL which may not be considered reliable and are not used in data interpretation.


A
24 h
48 h
Extracellular LDH release (OD490)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Reference chamber
Incubator control
B
24 h
48 h
IL-8 concentration (ng/mL)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Reference chamber
Incubator control


A
IL-1β concentration (pg/mL)
11.5
11.0
10.5
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
Air
SHV
ChV
GE
GE+SHV
GE+ChV
LPS
24 h
48 h
B
TNF-α concentration (pg/mL)
1100
1000
900
800
700
600
500
400
300
0
-2
-4
-6
-8
-10
Air
SHV
ChV
GE
GE+SHV
GE+ChV
LPS
24 h
48 h