Eco-Friendly Poly(Vinyl Alcohol) Nanofiber-Based Air Filter for Effectively Capturing Particulate Matter

Han-Jung Kim [1,†], Dong-In Choi [1,†], Sang-Keun Sung [2], Su-Han Lee [2], Sang-Jin Kim [1], Junhee Kim [1], Byong-Sam Han [3], Dong-Ik Kim [4] and Yoonkap Kim [1,*]

[1] Convergence Materials Research Center, Gumi Electronics and Information Technology Research Institute (GERI), Gumi-si 39171, Korea; hjkim0321@geri.re.kr (H.-J.K.); cdi3955@naver.com (D.-I.C.); sjkim@geri.re.kr (S.-J.K.); junhee.kim@geri.re.kr (J.K.)

[2] Digital Health Care Research Center, GERI, Gumi-si 35027, Korea; sungsk@geri.re.kr (S.-K.S.); swan@geri.re.kr (S.-H.L.)

[3] SUNTECH Co., Ltd., Gumi-si 39166, Korea; bshan@i-suntech.com

[4] BRAIN GEAR Co., Ltd., Daejeon 34051, Korea; nonlinearkim@naver.com

* Correspondence: yoonkap@geri.re.kr

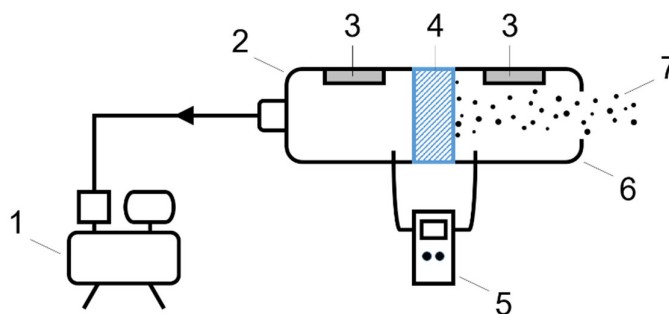† These two authors contributed equally and should be regarded as co-first authors.

Figure S1. Scheme of PM filtration set. (1) Air pump; (2) Air filtered tube; (3) PM sensors; (4) Air filter; (5) Differential pressure gauge; (6) Smoke inlet; (7) Incense smoke.
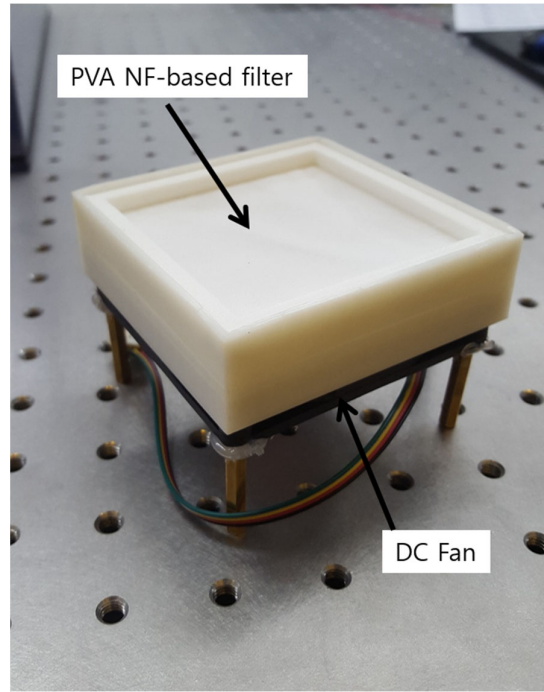
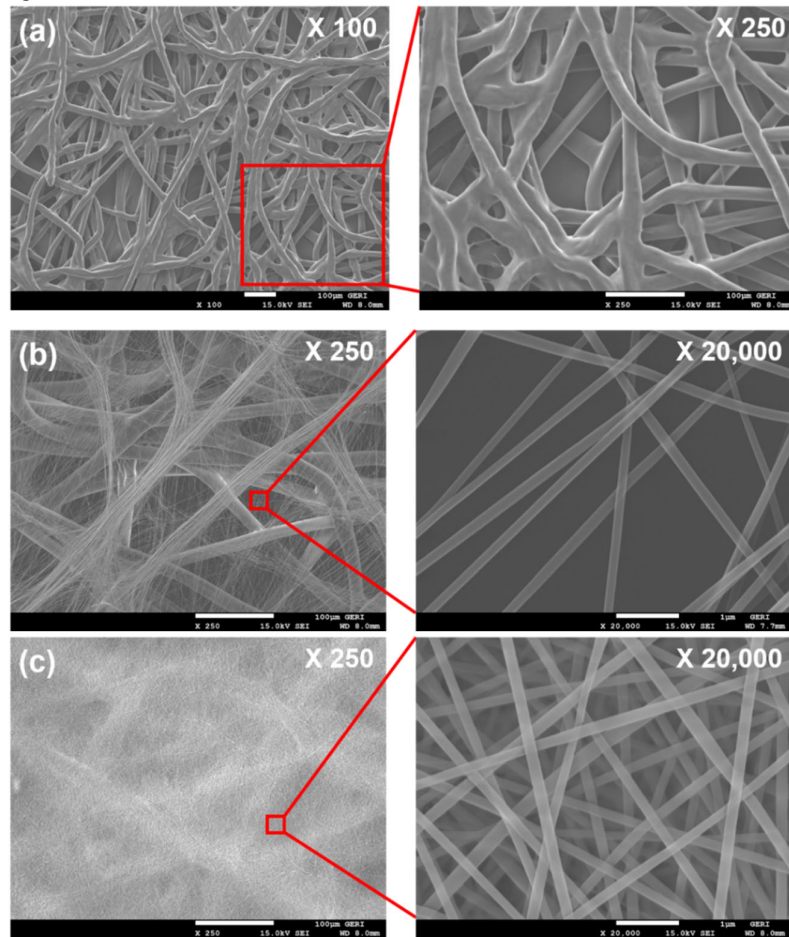**Figure S2.** PM removal device used in chamber test.

Figure S3. Surface FE-SEM images of samples. (a) Nonwoven fabric; (b) PVA NF-based filter (electrospinning time: 180 s); (c) PVA NF-based filter (electrospinning time: 600 s).
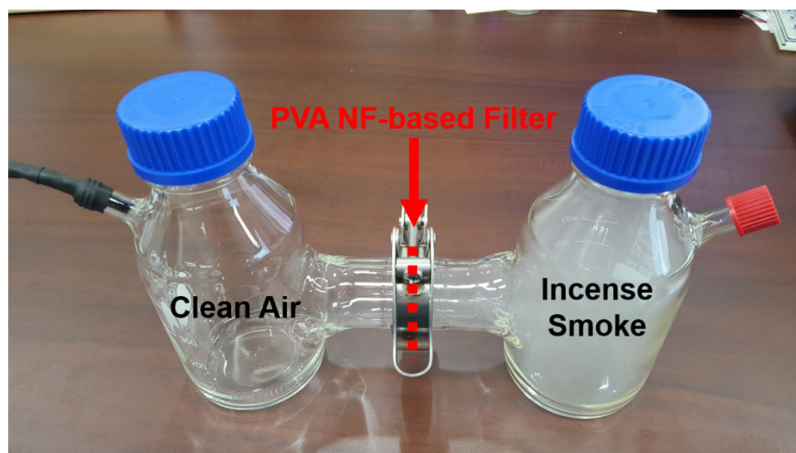
Figure S4. Demonstration of using PVA NF-based filter to block the PM entering from the right glass bottle to left glass bottle.

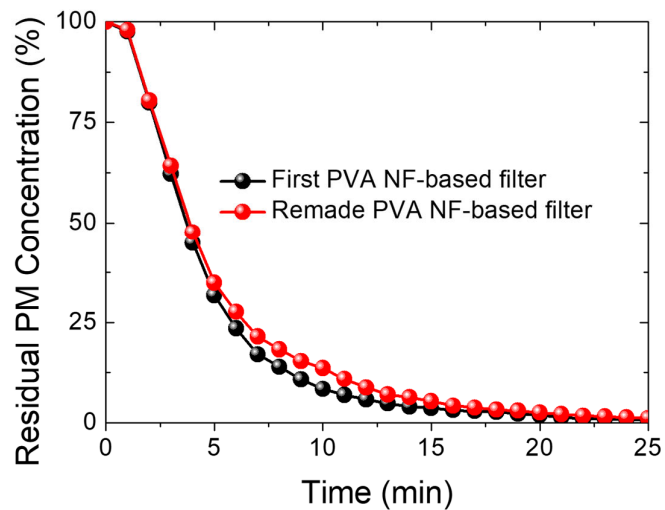**Figure S5.** Comparison of chamber test results of PVA NF-based filter by reusing nonwoven fabric substrate.