The Strong Cell-based Hydrogen Peroxide Generation Triggered by Cold Atmospheric Plasma

Dayun Yan^{1*}, Haitao Cui¹, Wei Zhu¹, Annie Talbot², Lijie Grace Zhang¹, Jonathan H. Sherman³,

and Michael Keidar 1*

¹Department of Mechanical and Aerospace Engineering, The George Washington University,

Science & Engineering Hall, 800 22nd Street, NW, Washington, DC 20052, USA

²Columbian College of Arts and Sciences, The George Washington University, Philips Hall, 801

22nd Street, NW, Suite 212, Washington, DC 20052, USA

³Neurological Surgery, The George Washington University, Foggy Bottom South Pavilion, 22nd

Street, NW, 7th Floor, Washington, DC 20037, USA

*Corresponding authors: Dayun Yan ydy2012@gwmail.gwu.edu, Michael Keidar

keidar@gwu.edu



Fig. S1. Cancer cells quickly consume the H_2O_2 in CAP-stimulated DMEM (CAP's medium) and in H_2O_2 -containing DMEM (H_2O_2 -DMEM) in hours. (a) PA-TU-8988T cells. (b) MDA-MB-231 cells. Consuming H_2O_2 is a basic feature of cancer cells exposed to H_2O_2 . 1 hr, 2 hr, and 3 hr represent the time length that two cell lines cultured in CAP's DMEM or in H_2O_2 -DMEM. The initial H_2O_2 concentration in CAP's medium and H_2O_2 - DMEM is the same and is not shown at

here. K represent 1 x 10^3 . Results are presented as the mean \pm s.d. of two independently repeated experiments in triplicate.



Fig. S2. The effect of helium flow on the cell viability of cancer cells. (a) PA-TU-8988T cells. (b) MDA-MB-231 cells. Results are presented as the mean \pm s.d. of three independently repeated experiments.



Fig. S3. Schematic illustration for the protocols of CAP treatment. (a) Direct CAP treatment. (b) Indirect CAP treatment.