Electronic Supplementary Material (ESI) for CrystEngComm.

SUPPORTING INFORMATION

Construction of novel hybrid PdO-ZnO p-n heterojunction nanostructures as high-response sensor for acetaldehyde gas

Sanjit Manohar Majhi,* Hu-Jun Lee, Ha-Nui Choi, Ha-Young Cho, Jin-Soo Kim, Cheul-Ro Lee, Yeon-Tae Yu *

Division of Advanced Materials Engineering and Research Center for Advanced Materials Development, College of Engineering, Chonbuk National University, Jeonju, 561-756, South Korea

* Corresponding Authors:

E-mail: yeontae@jbnu.ac.kr (Y. T. Yu), Phone: +82-63-270-2288, Fax: +82-63-270-2305, sanjit.majhi@kaust.edu.sa (S. M. Majhi)

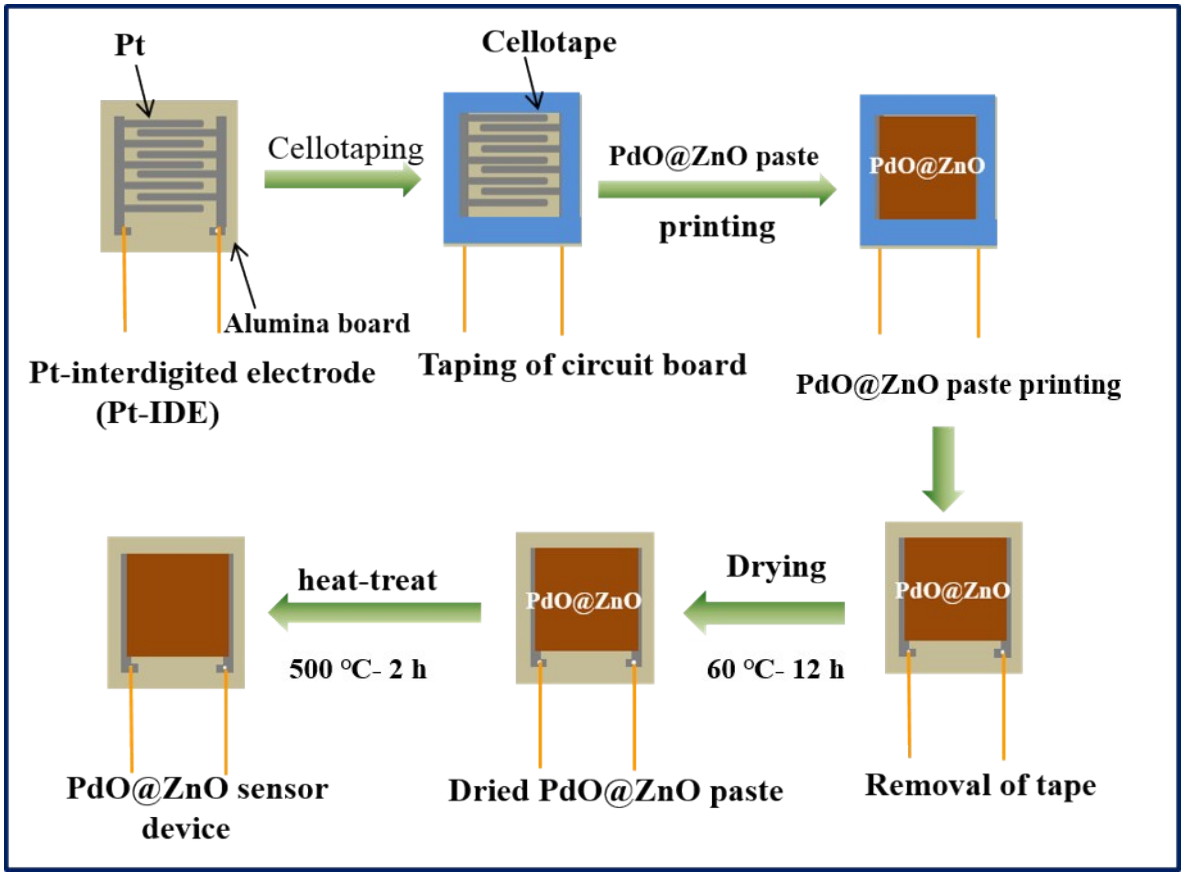

Figure S1. Schematic diagram of preparation of PdO@ZnO p-n heterojunction NSs sensor device.

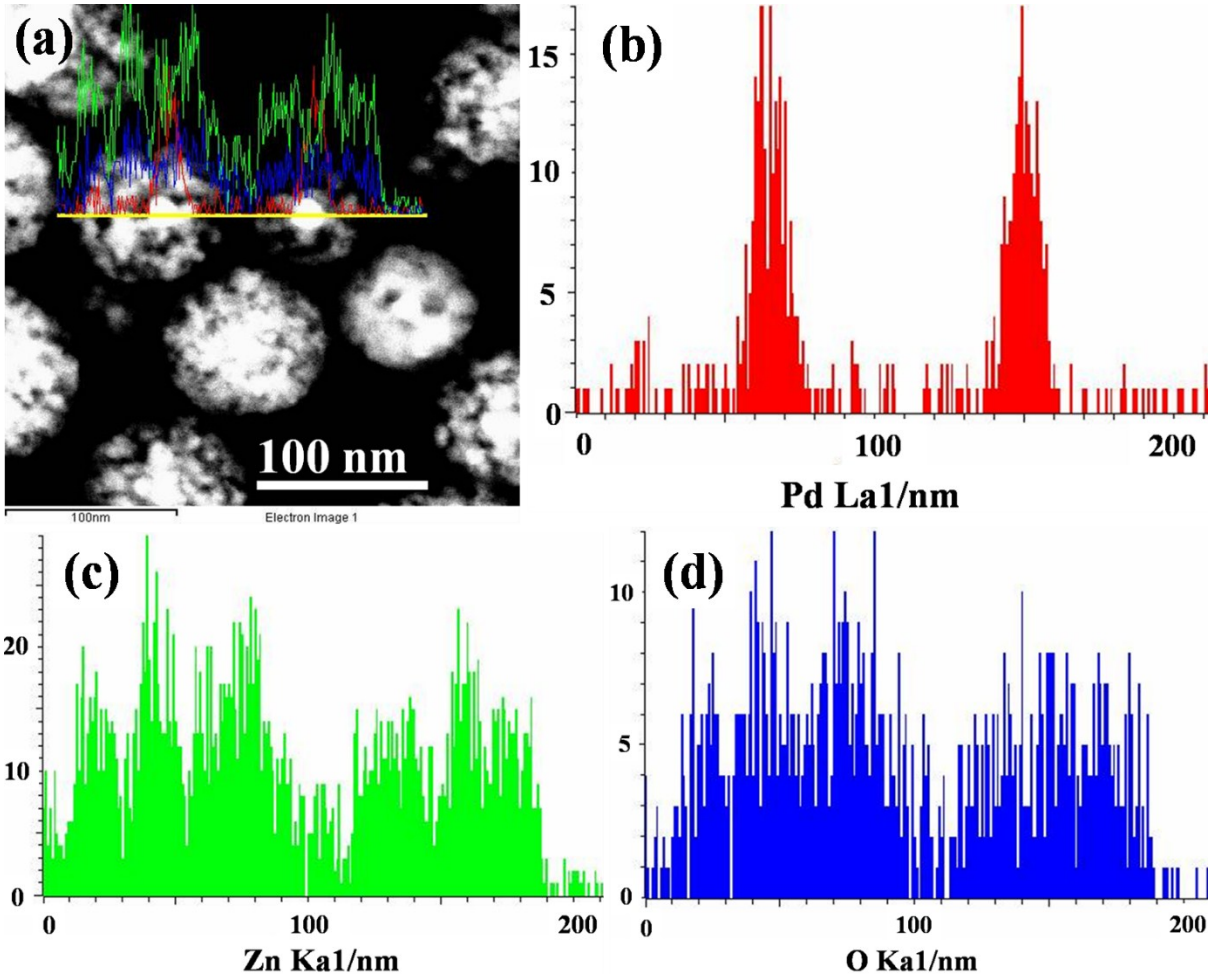

Figure S2. (a) HAADF-STEM line scan images of PdO@ZnO p-n heterojunction NSs showing the intensities of (b) Pd, (c) Zn and (d) O elements.

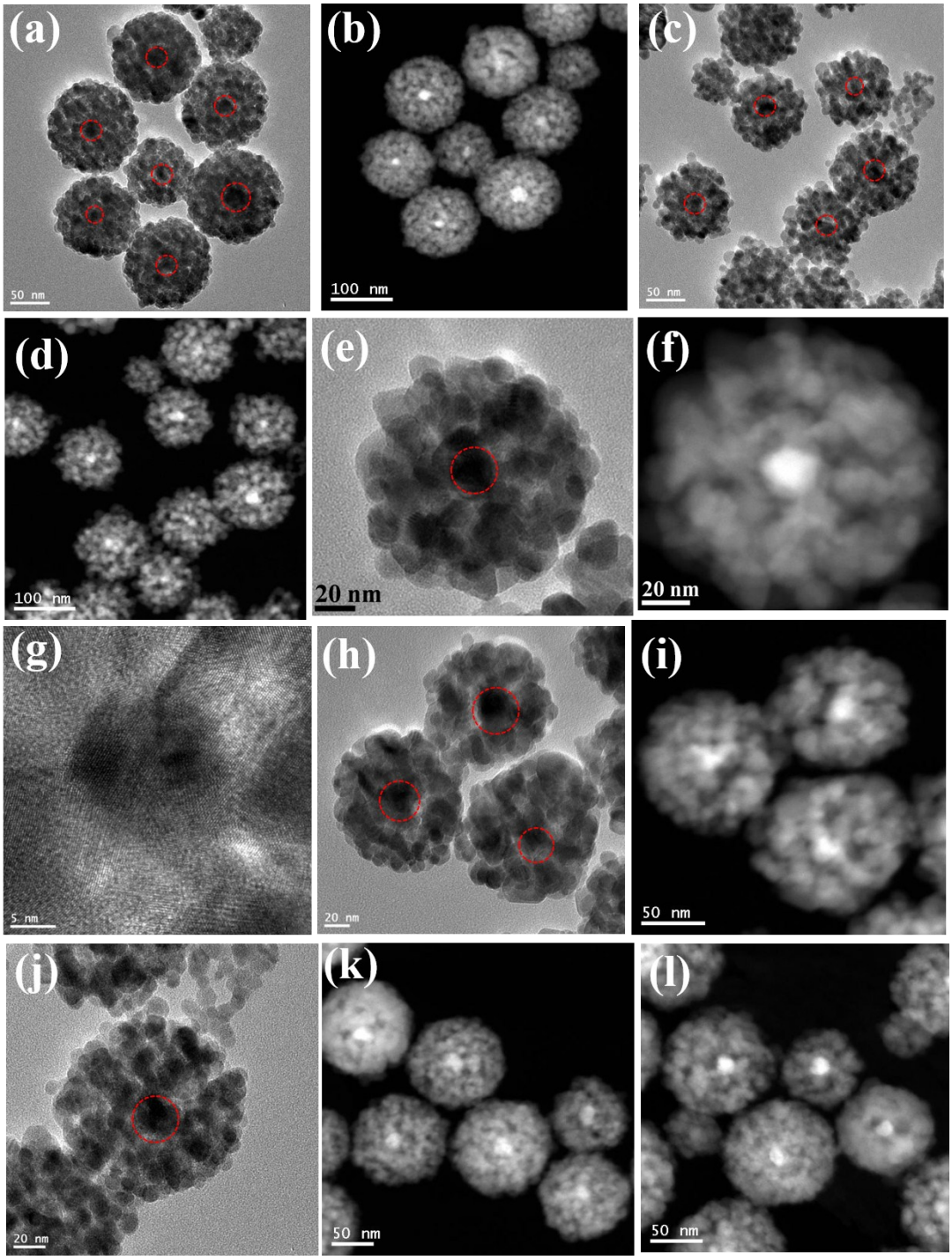

Figure S3. TEM, STEM (a-f), and (h-i), and HRTEM (g) images of PdO@ZnO p-n heterojunction NSs calcined after 500 ℃.

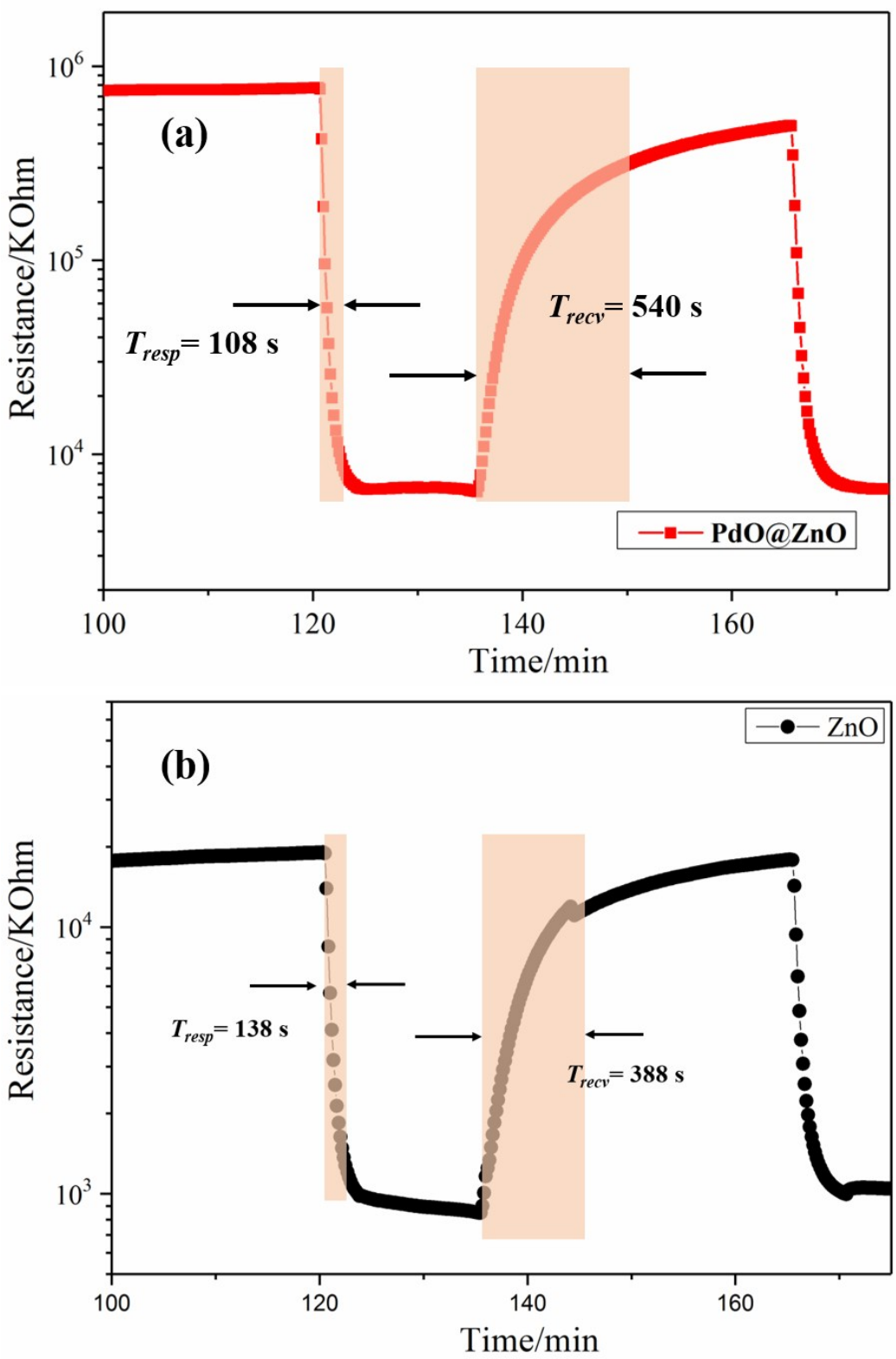

Figure S4. The response, and recovery characteristics of PdO@ZnO p-n heterojunction NSs, (a) and pure ZnO NSs (b) for 100-ppm acetaldehyde at 350 ℃.

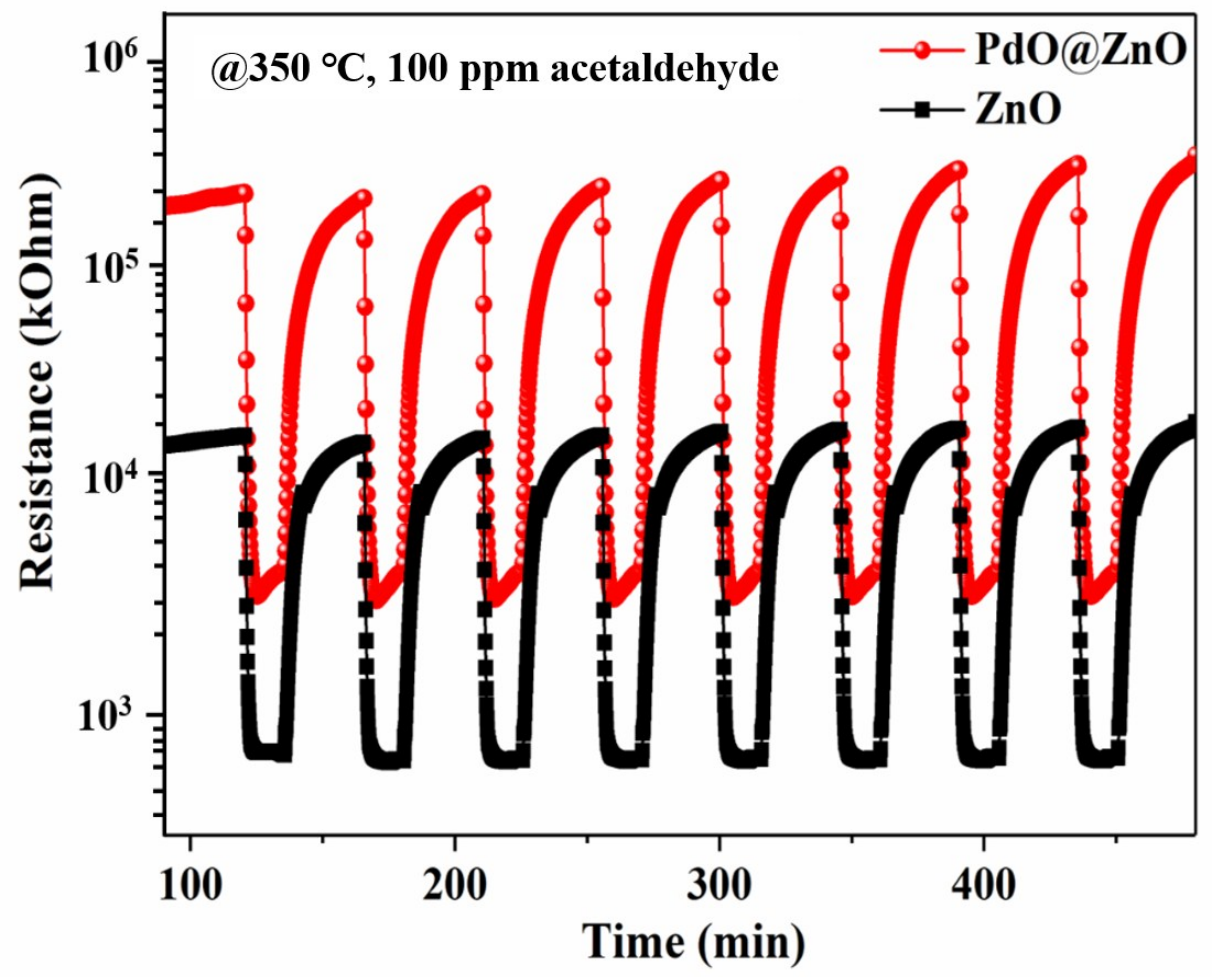

Figure S5. Repeatability test of the ZnO NPs and PdO@ZnO p-n heterojunction NSs sensors at 350 °C for 100 ppm of acetaldehyde.

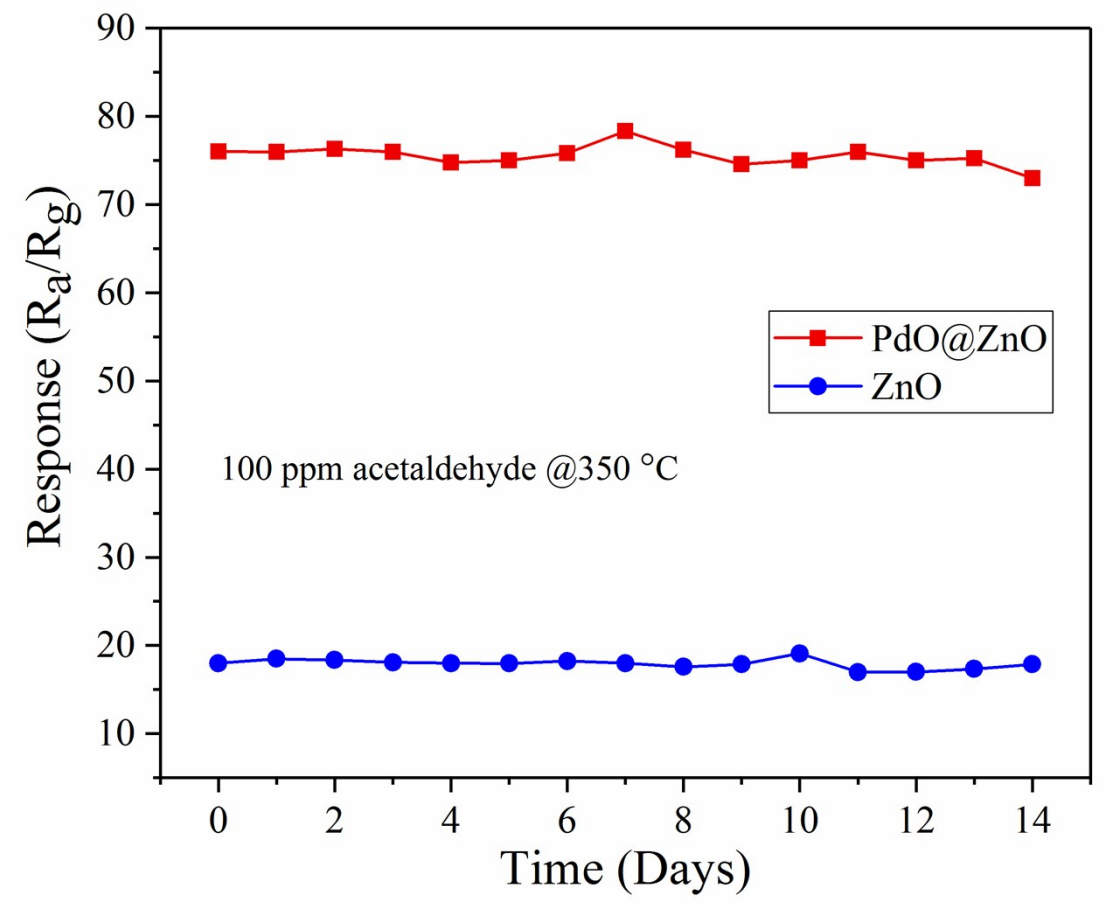

Figure S6. Long-term stability test of the PdO@ZnO p-n heterojunction NSs and ZnO NPs sensors at 350 °C for a period of two weeks.