

Dietary nanoparticles interact with gluten peptides and alter the intestinal homeostasis increasing the risk of Celiac Disease

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Supplementary Materials

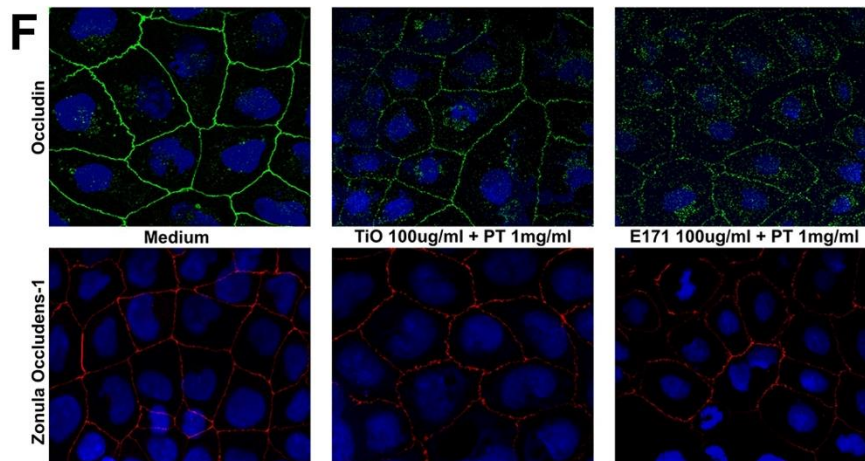
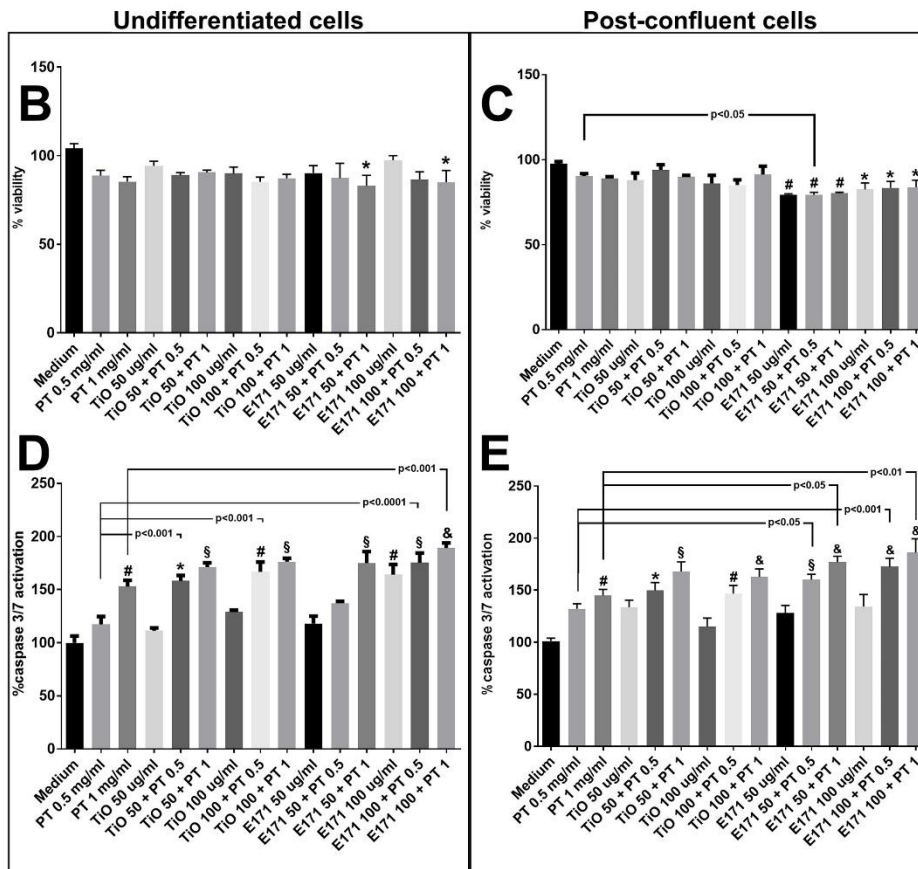
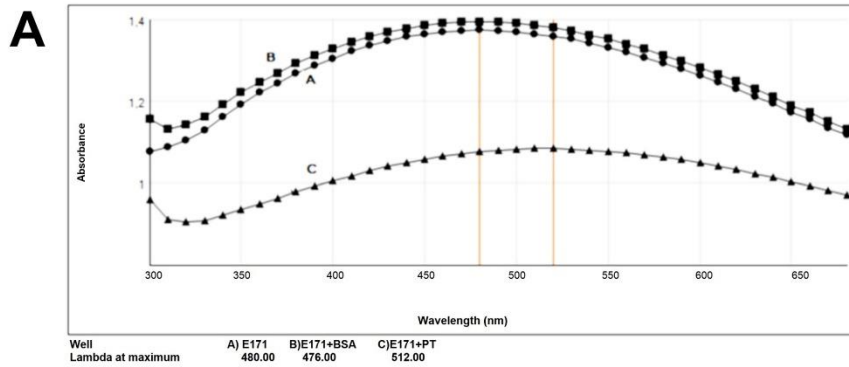


Figure S1: E171 vs TiO₂NP. (A) UV-Vis spectra of E171; (B) MTT performed on undifferentiated Caco-2 cells; (C) MTT performed on post-confluent Caco-2 cells; (D) Apoptosis Assay on undifferentiated Caco-2 cells; (E) Apoptosis Assay on post-confluent Caco2 cells; Significance versus untreated cells is indicated above each column (*p<0.05; #p<0.01; §p<0.001; &p<0.0001), whereas versus PT is represented by bars. Data are shown as mean value and SD. (F) OCLN and ZO-1 immunofluorescence in post-confluent Caco2 cells. We only reported images of cells treated with the combinations: TiO₂NP (100ug/ml) +PT (1mg/ml) and E171 (100ug/ml) + PT (1mg/ml).

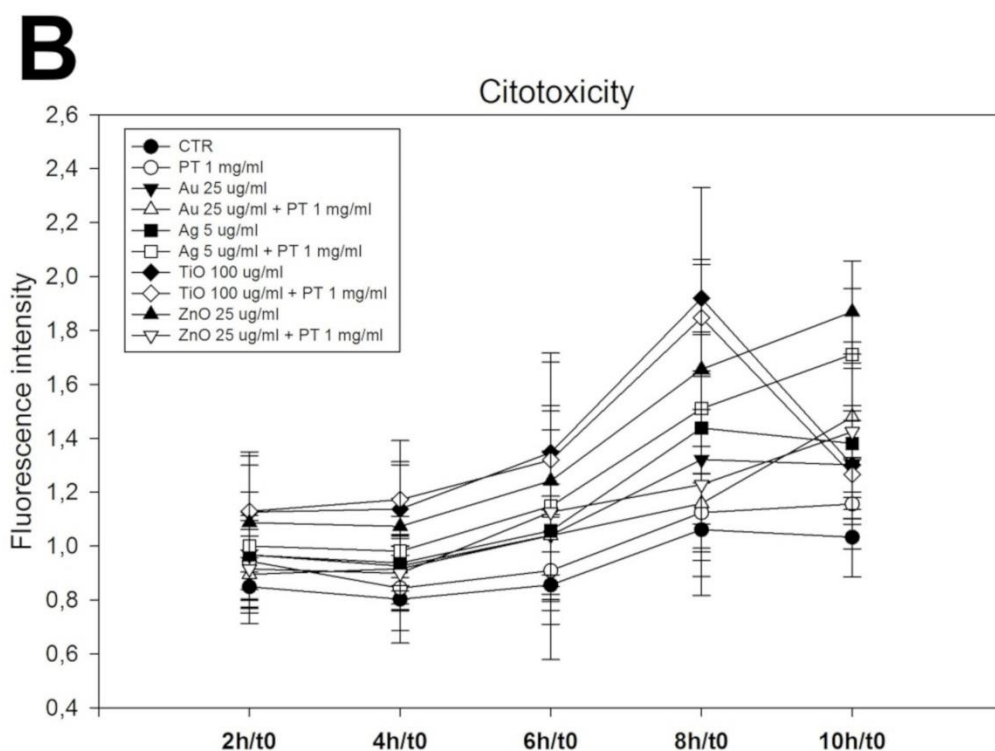
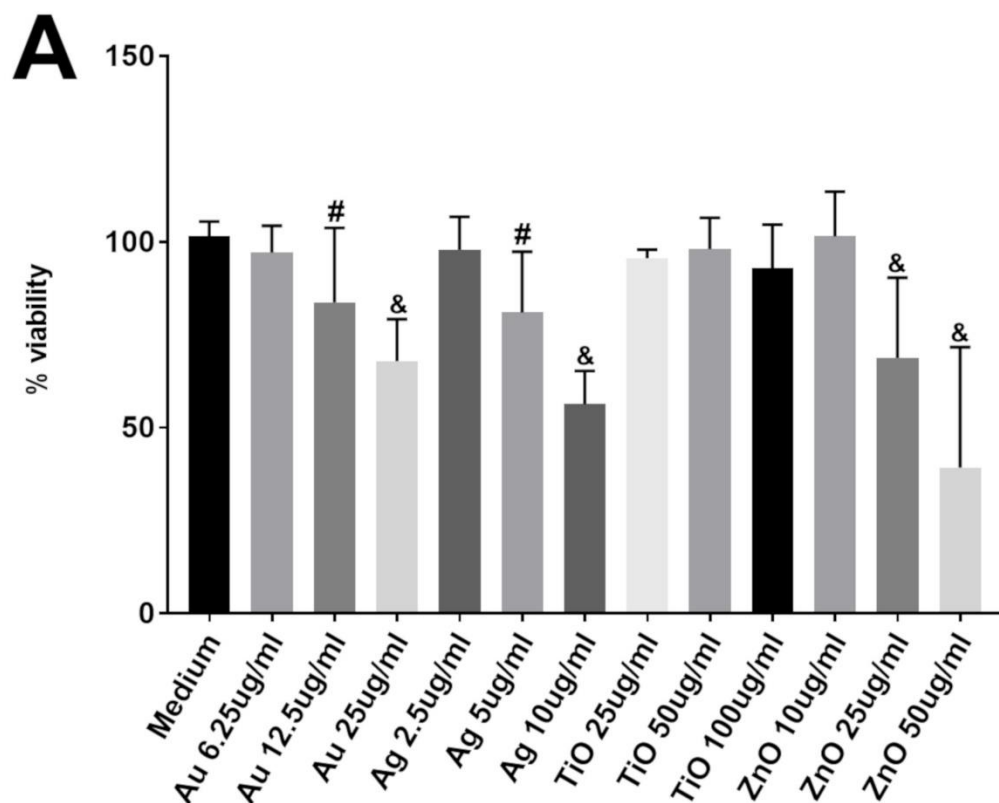


Figure S2: Dose response of the mNPs and time course of the various treatments in undifferentiated Caco2 cells. (A) MTT assay at 24 hours. Data are expressed as % of untreated cells (Medium). Significance versus untreated cells is indicated above each column (# $p < 0.01$; & $p < 0.0001$). (B) Time course of cytotoxicity caused by the various treatments. The fluorescence intensity represented is the one detected at the single time point minus the fluorescence at time 0.

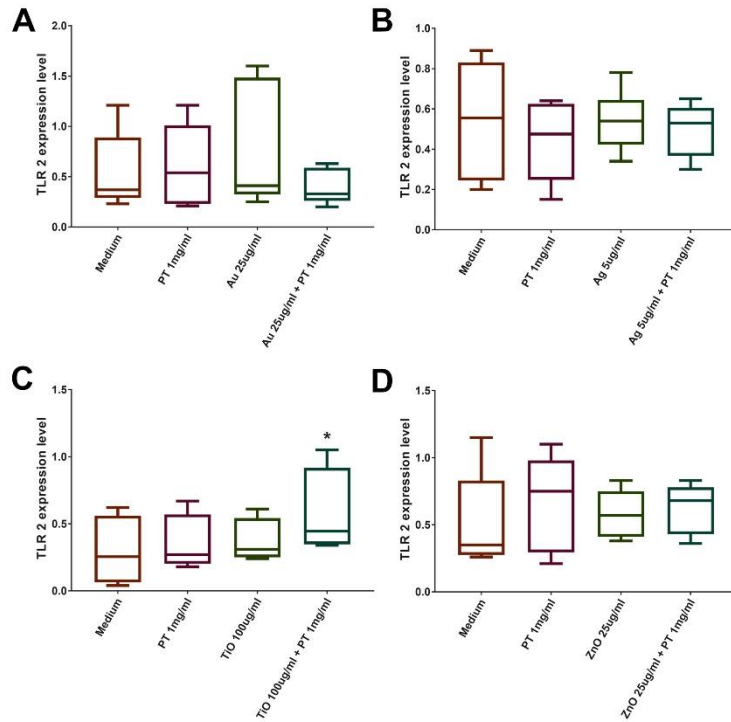


Figure S3. TLR2 expression in CeD patients on a GFD. Duodenal biopsies stimulated 4h with PT 1mg/ml \pm (A) AuNP 25 ug/ml (n=5); (B) AgNP 5 ug/ml (n=6); (C) TiO₂NP 100 ug/ml (n=4); (D) ZnONP 25 ug/ml (n=5). Significance versus untreated biopsies is indicated above each column (*p<0.05). Box plots represent median, 25th, and 75th percentiles. Whiskers indicate 5th and 95th percentiles.

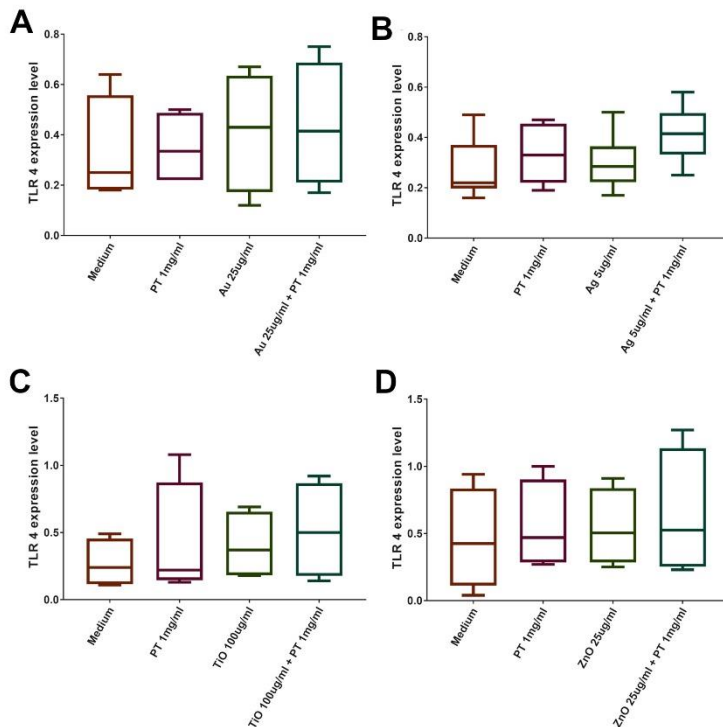


Figure S4. TLR4 expression in CeD patients on a GFD. Duodenal biopsies stimulated 4h with PT 1mg/ml \pm (A) AuNP 25 ug/ml (n=5); (B) AgNP 5 ug/ml (n=6); (C) TiO₂NP 100 ug/ml (n=4); (D) ZnONP 25 ug/ml (n=5). Significance versus

untreated biopsies is indicated above each column (* $p < 0.05$). Box plots represent median, 25th, and 75th percentiles. Whiskers indicate 5th and 95th percentiles.