Supporting Information

Table S.1 Salt Components in HH Combo medium

Compound	**Chemical formula**	**Stock (g/L)**
Calcium Chloride, Dihydrate	$CaCl_2 \cdot 2H_2O$	110.28
Magnesium sulphate heptahydrate	$MgSO_4 \cdot 7H_2O$	113.5
Potassium phosphate dibasic	K_2HPO_4	1.742
Sodium nitrate	$NaNO_3$	17
Sodium metasilicate nonahydrate	$Na_2SiO_3 \cdot 9H_2O$	28.42
Boric acid	H_3BO_3	24
Potassium chloride	KCl	5.96
Sodium Bicarbonate	$NaHCO_3$	63

Table S.2 Ingredients in Animate. 1 mL of each of the stocks was pipetted into a 1 L volumetric flask containing 500 mL of DI water and the volume was then brought to 1L. The contents were decanted into a Duran bottle for use.

Compound	**Chemical formula**	**Stock (g/100 mL)**
Lithium chloride	LiCl	31
Rubidium chloride	RbCl	7
Strontium chloride Hexahydrate	$SrCl_2 \cdot 6H_2O$	15
Sodium bromide	NaBr	1.6
Potassium iodide	KI	0.33

Table S.3 Ingredients in Vitamin stock solution.

Compound		
Biotin (*d*-biotin)	10 mg into 96 ml dH_2O	Aliquot to 1.5 ml and keep sterile and frozen (-20 °C)
B12 (cyanocobalamin)	10 mg into 89 ml dH_2O	Aliquot to 1.5 ml, cover with foil and keep sterile and frozen (-20 °C)

To prepare the vitamin stock solution takeout one aliquot of biotin and B_{12} from -20 °C. To a single 50 ml volumetric flask, add 30 ml water, 0.5 ml biotin, 0.5 ml B12 and 10 mg of Thiamine HCl. Make to the mark (50 ml) with dH_2O, cover with foil and store in fridge for a maximum of one week. (Optional: autoclaved H_2O can be used to prepare the VIM solution but do not autoclave the VIM after addition of vitamins).

Table S.4 Mass spectrometry results of the proteins released by 1 or day 7 old *D. magna* (10 daphnids conditioning 2mL HH Combo medium in each case).

	Day 1	**Day 7**
Similar	Keratin Type II	
	Histone H3.2	
	Keratin Type I	
	Trypsin	
	Histone H2B	
	Actin, alpha skeletal muscle	
Different	Serum Albumin	Putative histone H3.2 (Fragment)
	Putative Actin	Carbohydrate sulfotransferase (Fragment)
	DnaJ subfamily C	

	Hemoglobin subunit alpha	Elongation factor 1-alpha
	Lactotransferrin	Carboxylic ester hydrolase
	Dynein heavy chain 6, axonemal	Histone H3.3
	Lysozyme	
	Malic enzyme (Fragment)	
	Hemoglobin subnit beta	
	Viral T-cell receptor beta chain T17T-22 (Fragment)	

Table S.5 Characterisation of CeO_2 NMs in HH Combo medium**:**

Technique	**Time 0**	**24 hours in Media**
DLS – size	6.282 ± 0.047 nm	29.83 ± 5.15 nm
Zeta Potential	-0.318 ± 0.120 mV	-0.375 ± 0.096 mV
TEM	7.63 ± 2.6 nm	24.06 ± 15.9 nm

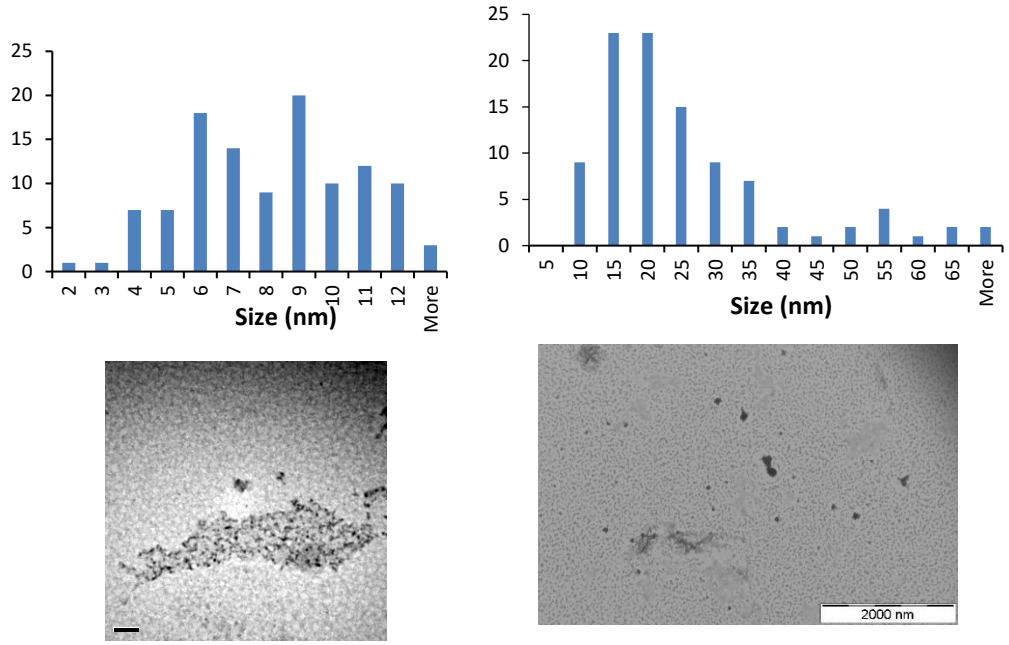

Table S.6 Characterisation of ZnO NPs in HH Combo medium.

Technique	**Time 0**	**24 hours in Media**
DLS – size	5.291 ± 0.103 nm	20.63 ± 4.14 nm
Zeta Potential	-3.85 ± 0.889 mV	-2.60 ± 0.532 mV
TEM	5.78 ± 2.25 nm	11.45 ± 7.6 nm

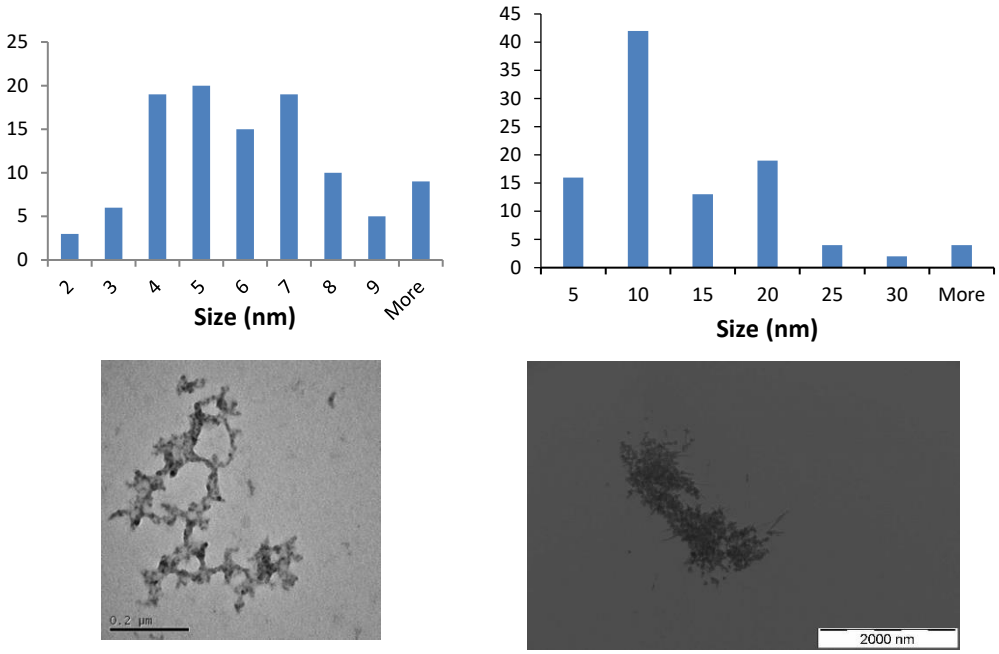

Table S.7 *D. magna* exposure to 10 K PVP control at concentrations corresponding to the CeO_2 NP exposure concentrations (i.e. maximum potential PVP concentration associated with the NPs).

CeO_2 Concentration (mg/L) corresponding to maximum potential PVP concentration	**% Survival**
0.1	100 ± 0
0.2	100 ± 0
0.3	93.3 ± 2.87
0.4	90 ± 5

1.

Table S.8 Statistical Analysis of CeO_2 NP loss to the vessel (in the absence of *D. magna*)

Time	Average (%)	Students T test	
0	95.7 ± 3.9		
0.5	98.2 ± 3.4	0.444024	
1	99.5 ± 8.9	0.548013	
6	98.3 ± 5.3	0.534382	
12	69.1 ± 6.1	0.005417	*
24	60.6 ± 8.8	0.010555	*

Table S.9 Statistical Analysis of ZnO NP loss to the vessel (in the absence of *D. magna*)

Time	Average (%)	Students T test
0	80.5 ± 16.9	
0.5	52.1 ± 4.5	0.09
1	63.2 ± 11.3	0.23
6	50.8 ± 1.1	0.09
12	41.4 ± 4.4	0.05
24	46.6 ± 3.2	0.07