Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

Developing a tissue glue by engineering the adhesive and hemostatic properties of metal oxide nanoparticles.

*Martin T. Matter, Fabian Starsich, Marco Galli, Markus Hilber, Andrea A. Schlegel, Sergio Bertazzo, Sotiris E. Pratsinis, Inge K. Herrmann**

**inge.herrmann@empa.ch*

+41 (0)58 765 71 53

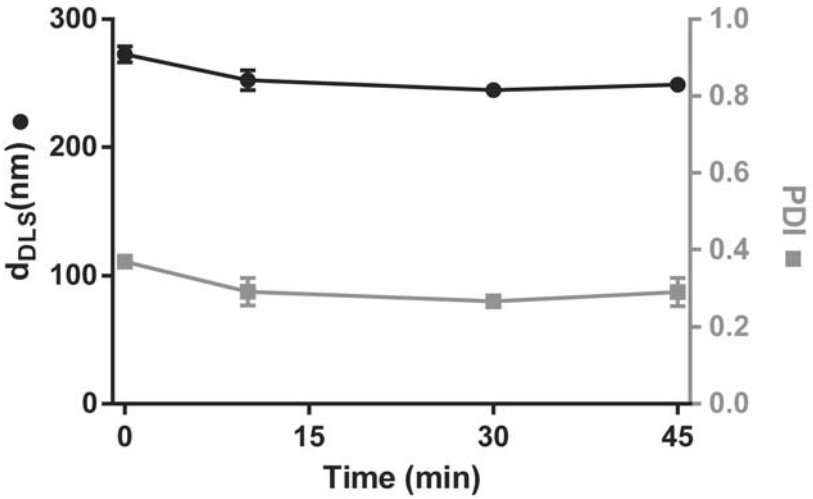

***Figure S1**: DLS diameter and polydispersity index of bioglass/ceria particles over time.*

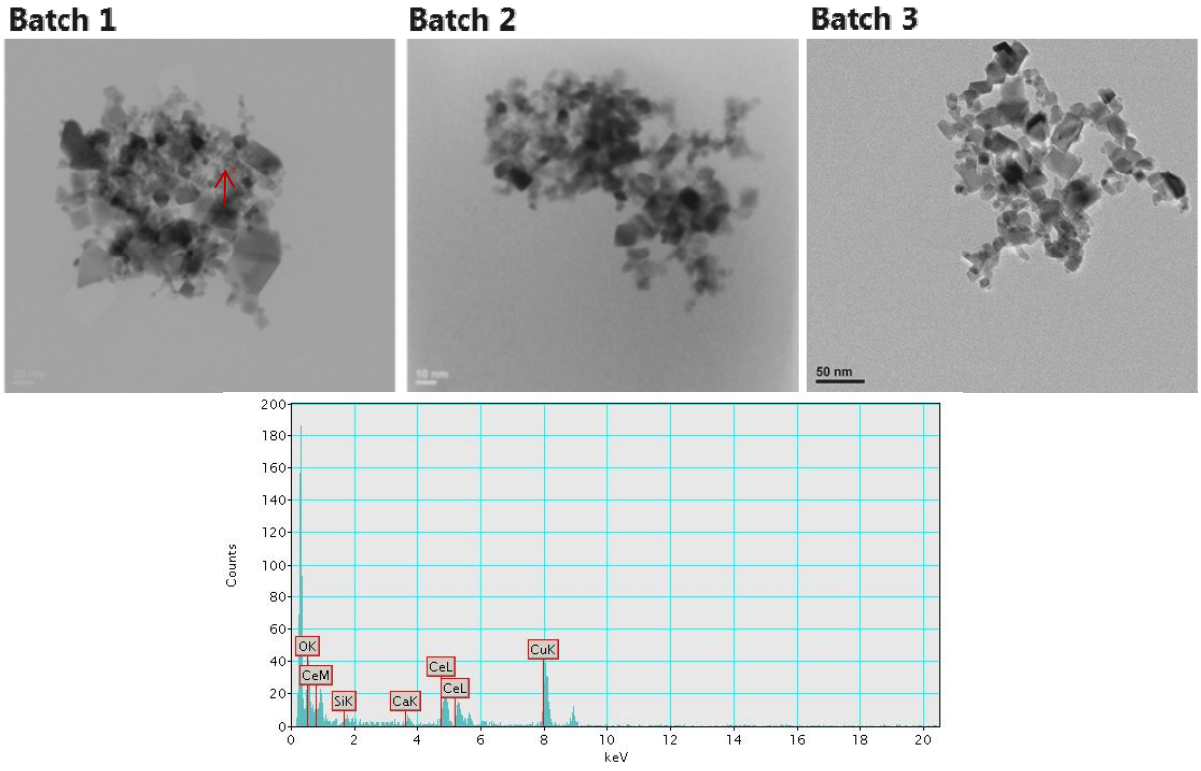

***Figure S2:** Scanning transmission electron micrograph of three different batches of bioglass/ceria particles. All batches show larger ceria crystallites surrounded by fine bioglass particles. An energy-dispersive x-ray spectrum (EDS) of one sample (red arrow indicates the spot) was recorded and confirms the occurrence of both ceria and bioglass (Si and Ca).*

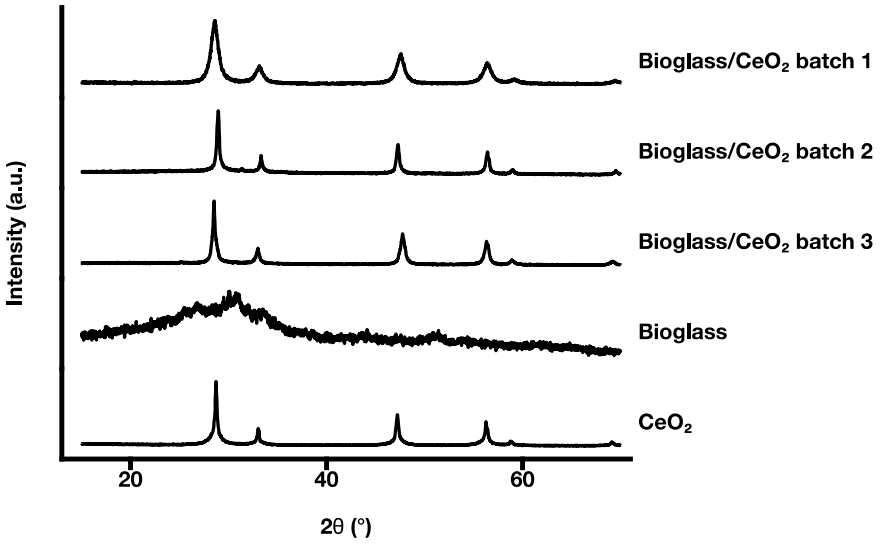

Figure S3: *X-ray diffractograms of CeO_2, Bioglass and different batches of Bioglass/CeO_2 particles.*

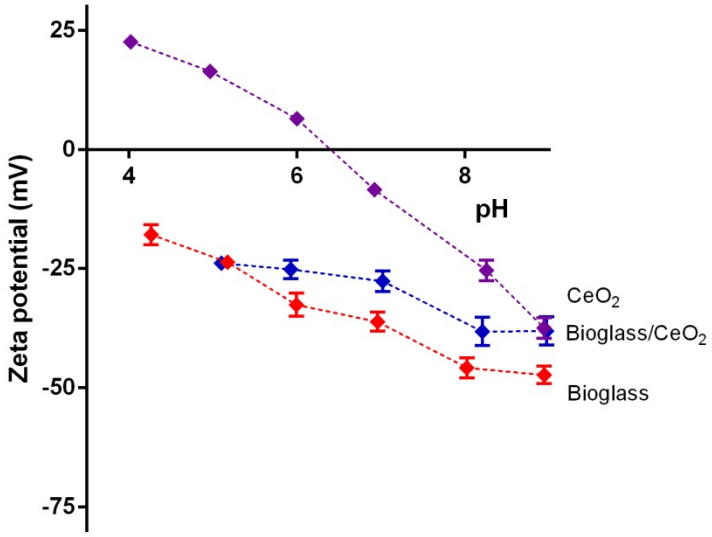

Figure S4: *Zeta potential measurements of CeO_2, Bioglass and Bioglass/CeO_2 particles at different pH values. n=3 measurements per pH. The mean values and SD are displayed.*

Table S1: *DLS size measurement in distilled water. Mean values ± SD are reported.*

Nanoparticle	$d_{DLS\ [nm]}$	PDI
Bioglass	2700 ± 200	0.40
Bioglass stabilized with TWEEN 20	600 ± 300	1.00
Borate glass	3300 ± 700	0.45
CeO_2	510 ± 60	0.36
Fe_2O_3	185 ± 6	0.38
SiO_2	235 ± 4	0.39
Bioglass/CeO_2 batch 1	450 ± 20	0.64
Bioglass/CeO_2 batch 2	273 ± 6	0.37
Bioglass/CeO_2 batch 3	440 ± 30	0.41

Figure S5: (a,b) *Absorbance at 490 nm after particle removal by centrifugation at 6000 × g.* ***(c)*** *LDH cytotoxicity assay for concentrations ranging from 0.01 – 1 mg per mL.* ***(d)*** *Trypan blue assay for iron oxide nanoparticle concentrations of 0.01- 1 mg per mL*