Journal Name

Dynamic Article Links ►

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

Polymeric foams with functional nanocomposite cells

Paola Calcagnile,[a] Despina Fragouli,*[b] Elisa Mele,[b] Roberta Ruffilli,[c] and Athanassia Athanassiou[b]

[a] Center for Biomolecular Nanotechnologies (CBN) @UNILE, Istituto Italiano di Tecnologia (IIT) Via Barsanti, 73010 Arnesano (LE), Lecce, Italy.
[b] Smart Materials Group – Nanophysics, Istituto Italiano di Tecnologia, Via Morego 30, 16163 Genova, Italy.
[c] Nanochemistry, Istituto Italiano di Tecnologia, Via Morego 30, 16163 Genova, Italy.
despina.fragouli@iit.it

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

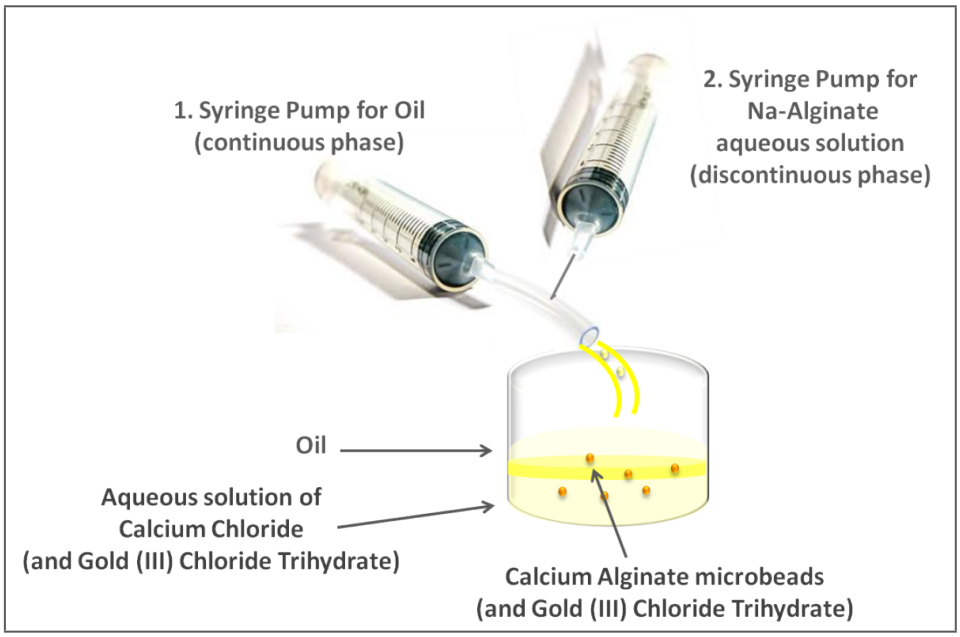

Figure S1. Schematic description of the T-junction fluidics set-up used for the fabrication of sub-millimetric calcium alginate beads.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

Oil Flow Rate, r_o (mL/h)	Sodium Alginate Flow Rate, r_s (mL/h)	Diameter of Calcium Alginate Beads D (μm)
50	1	804 ± 57
300	1	488 ± 57
500	1	309 ± 65

Table S1. Values of flow rate for oil and sodium alginate solution utilized in the T-junction fluidics set-up, and the diameters of the alginate beads obtained.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

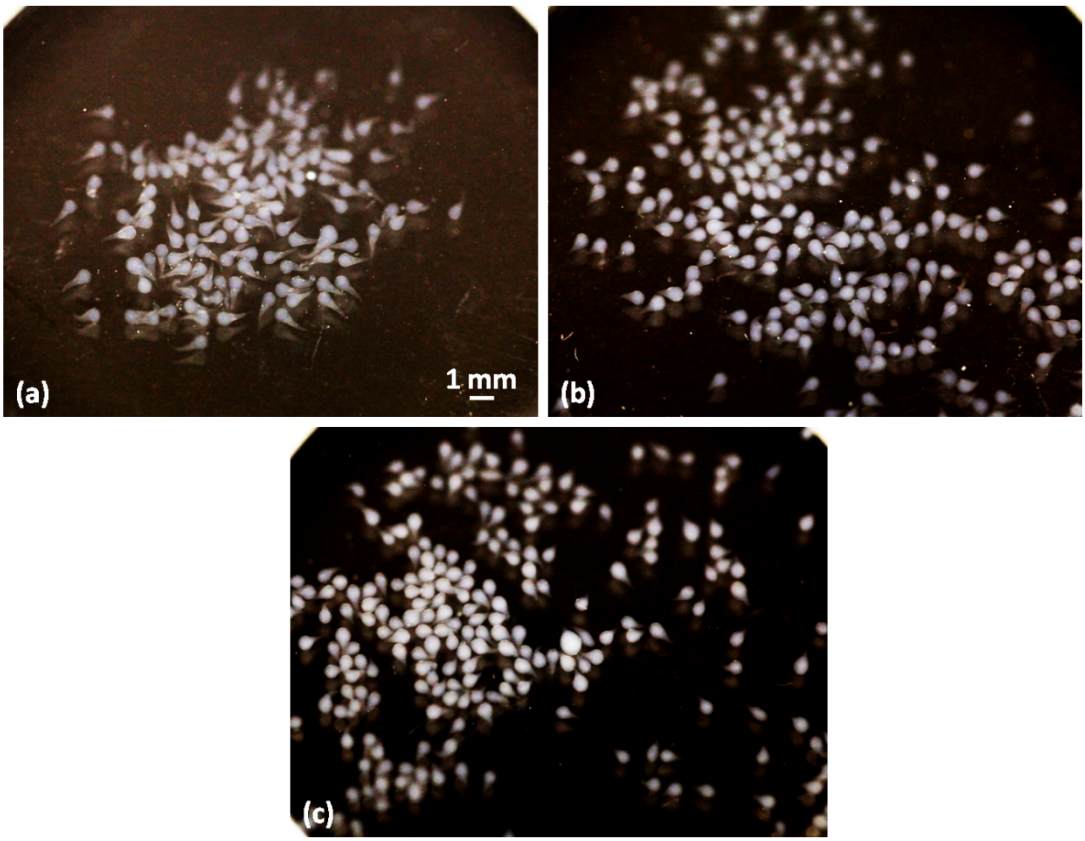

Figure S2. Optical images of calcium alginate beads obtained using the fluidics set-up and (a) 3%, (b) 5% and (c) 7%wt sodium alginate solution. A progressive reduction in the length of the tips can be observed.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

Figure S3. Photo of calcium alginate beads loaded with $HAuCl_4$ gold precursor. Ions Au^{3+} are reduced from the alginate matrix to Au^0, creating gold nanoparticles into the calcium alginate beads. Purple colour is characteristic for gold nanoparticles.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

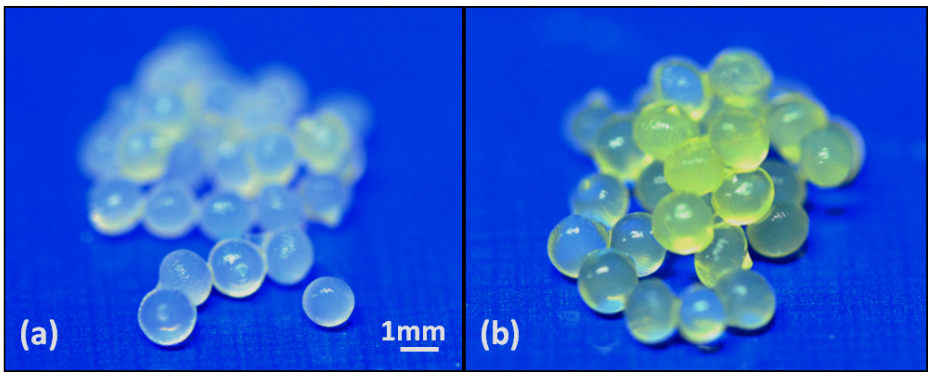

Figure S4. (a) Photo of calcium alginate beads with diameter of around 1.56 mm. (b) Photo of calcium alginate beads of same dimensions as (a), containing a high amount of gold precursor.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

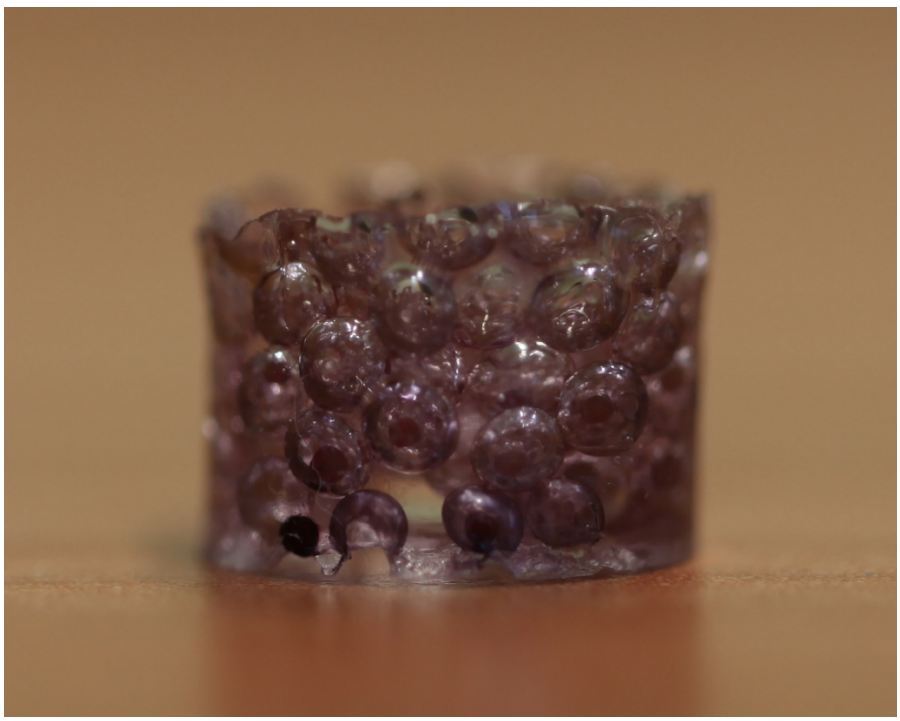

Figure S5. Photo of a PDMS foam obtained using gold precursor loaded calcium alginate beads as templates. It exhibits the typical purple colour due to the formation of gold nanoparticles at the inner surface of the pores, in contact with the beads.

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/xxxxxx

ARTICLE TYPE

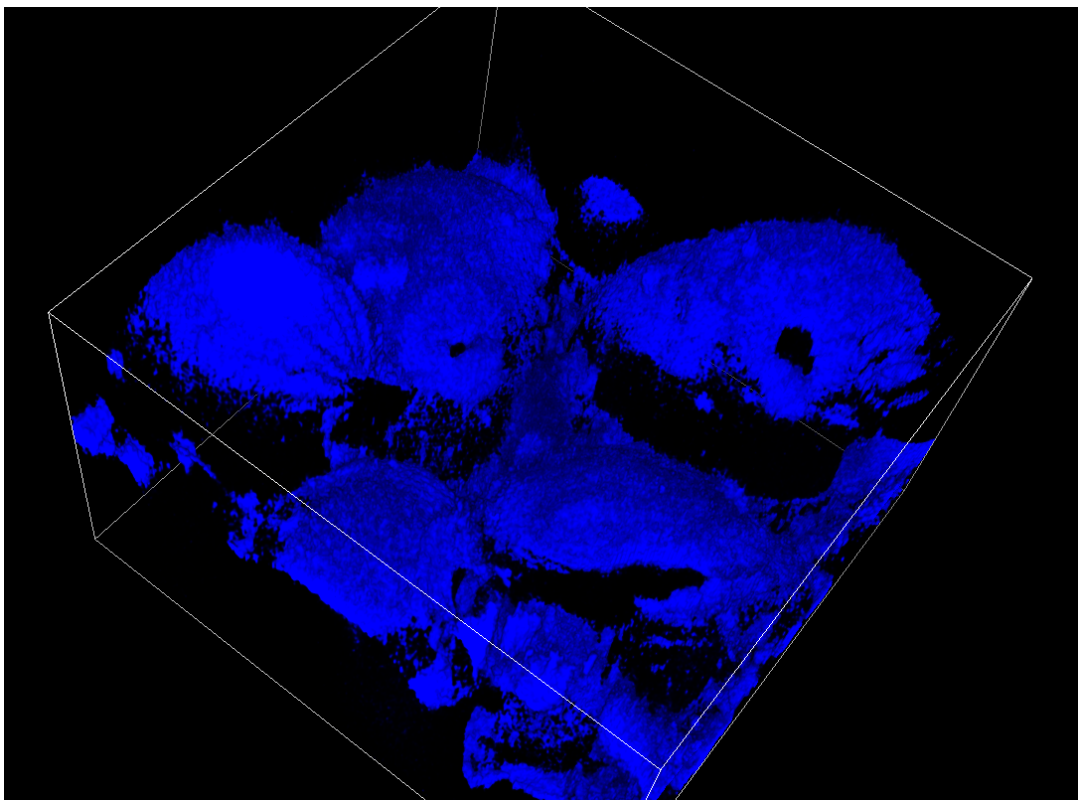

Figure S6. Three dimensional reconstruction of a PDMS foam, using gold precursor loaded calcium alginate beads as templates, as obtained by confocal microscopy. The blue region corresponds to the formation of gold nanoparticles at the inner surface of the pores.