Electronic Supplementary Material (ESI) for Photochemical & Photobiological Sciences. This journal is © The Royal Society of Chemistry and Owner Societies 2019

# In vitro evaluation of experimental light activated gels for tooth bleaching

## **Supplementary Information**

Christoph Kurzmann<sup>1,2</sup>, Jeroen Verheyen<sup>3</sup>, Michael Coto<sup>4</sup>, Ramachandran Vasant Kumar<sup>4</sup>, Giorgio Divitini<sup>4</sup>, Hassan Ali Shokoohi-Tabrizi<sup>1,2</sup>, Peter Verheyen<sup>5</sup>, Roeland Jozef Gentil De Moor<sup>1,6,7</sup>, Andreas Moritz<sup>1,2</sup>, Hermann Agis<sup>1,2</sup>

<sup>1</sup> Department of Conservative Dentistry and Periodontology, University Clinic of Dentistry, Medical University of Vienna, Vienna, Austria

<sup>2</sup> Austrian Cluster for Tissue Regeneration, Vienna, Austria

<sup>3</sup> Department of Physics, University of Cambridge, Cambridge, UK

<sup>4</sup> Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, UK

<sup>5</sup> Private Practice, Gruitrode, Belgium

<sup>6</sup> Department of Oral Health Sciences, Sections Endodontics and Reconstructive Dentistry, Ghent University, Ghent, Belgium

<sup>7</sup> Ghent Dental Laser Centre, Laser Clinic, Afsnee, Belgium

**Corresponding author:** Hermann Agis, PhD, Medical University of Vienna, University Clinic of Dentistry, Department of Conservative Dentistry and Periodontology, Sensengasse 2a, 1090 Vienna, Austria. Phone: Tel: +43 1 400 70 – 2622; Fax: +43 1 400 70 – 4109; E-mail: hermann.agis@meduniwien.ac.at Fax number and e-mail can be published

### **Supplementary Experimental**

#### Scanning electron microscopy

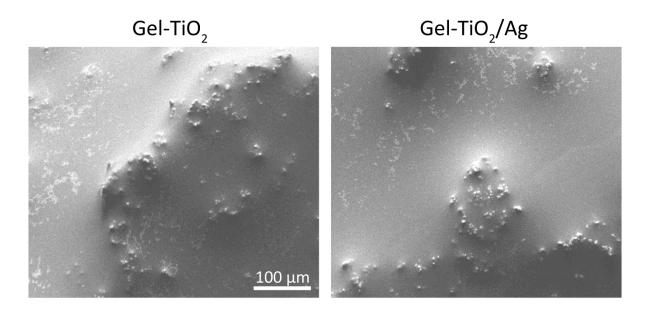
Scanning electron microscope (SEM) evaluation was performed as previously published with minor modifications <sup>38</sup>. In brief, an aluminium specimen holder was covered with gel, which was then dehydrated in vacuum for 5 h at 100 mbar, followed by a drying phase of 24 h at room temperature. The use of a conventional drying chamber was avoided to prevent thermal damage to the compounds of the gels. The concentrated gels were examined using SEM Quanta 200 (FEI Company, Hillsboro, OR, USA) with 20 kV at 500-fold magnification.

## **Supplementary Results**

#### Scanning electron microscopical examination of the experimental bleaching gels

Experimental bleaching gels with  $TiO_2$  nanoparticles and  $TiO_2/Ag$  nanoparticles appeared similar upon scanning electron microscopical evaluation (Supplementary figure 1). Even surface was observed with agglomerates of the respective nanomaterials.

Supplementary Figure



Supplementary figure 1: Scanning electron microscopic evaluation of the experimental bleaching gels. Scanning electron microscopic images of gel with  $TiO_2$  nanoparticles and gel with  $TiO_2/Ag$  nanoparticles after the dehydration process.