

ADVANCED MATERIALS INTERFACES

Open Access

Supporting Information

for *Adv. Mater. Interfaces*, DOI 10.1002/admi.202300785

Silicon-Based Sensing Surface for Alzheimer's Disease Diagnosis by Phages Probes

Paolo Calorenni, Vincenzo Paratore, Maria G. Rizzo, Laura M. De Plano, Guglielmo G. Condorelli, Giovanna De Luca, Salvatore Oddo, Salvatore Guglielmino, Emanuele L. Sciuto and Sabrina Conoci*

Supporting Information

Silicon-based sensing surface for Alzheimer's disease diagnosis by phages probes

Paolo Calorenni¹, Vincenzo Paratore², Maria G. Rizzo¹, Laura M. De Plano¹, Guglielmo G. Condorelli², Giovanna De Luca¹, Salvatore Oddo¹, Salvatore Guglielmino¹, Emanuele L. Sciuto^{1,} and Sabrina Conoci^{1,3,4}.*

¹ Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Viale F. Stagno D'Alcontres 37, 98166 Messina, Italy

² Department of Chemical Sciences, University of Catania, Viale Andrea Doria, 6, 95125 Catania, Italy

³ Department of Chemistry "Giacomo Ciamician", University of Bologna, Via Selmi 2, 40126 Bologna, Italy

⁴ URT Lab Sens Beyond Nano - CNR-DSFTM, Department of Physical Sciences and Technologies of Matter - University of Messina, Viale F. Stagno D'Alcontres 37, 98158 Messina, Italy

KEYWORDS. Silicon-based biointerface; surface morphological and chemical characterization; phage display; Alzheimer's disease diagnosis.

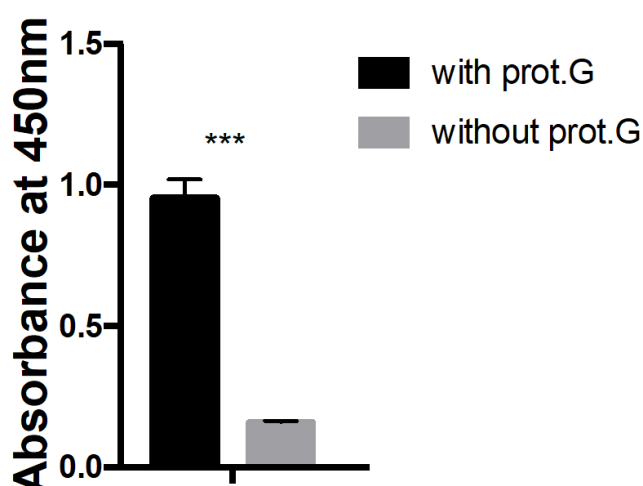
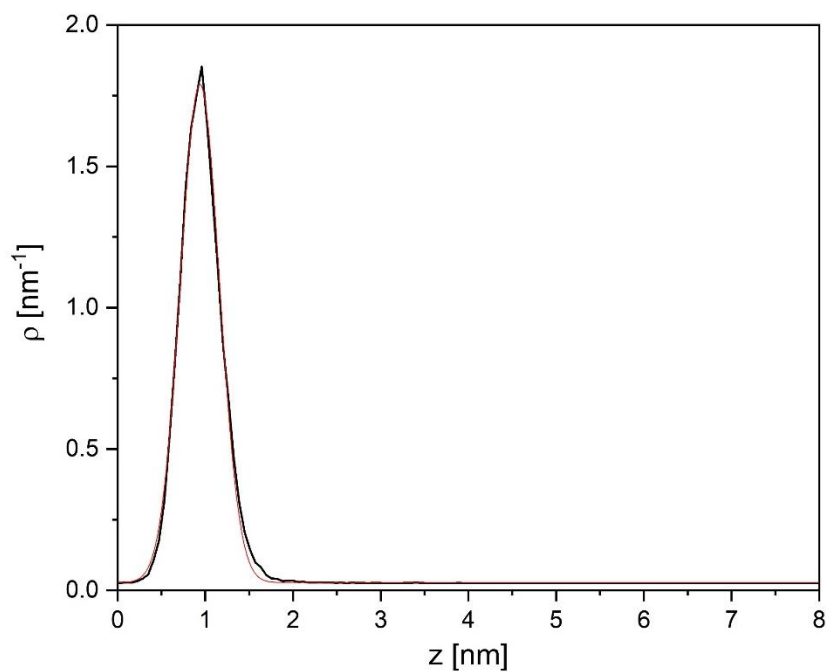
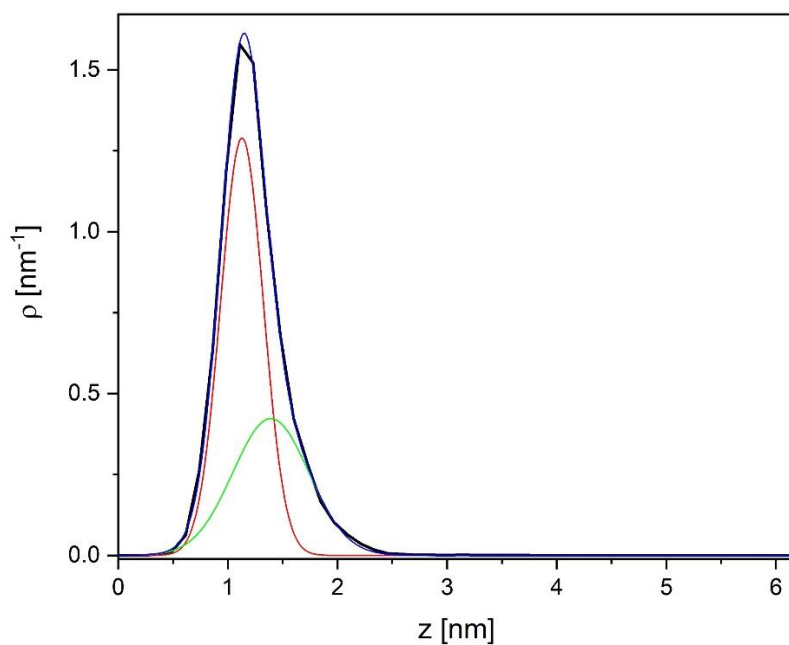


Figure S1. ADPP immune recognition of AD serum on plastic with and without protein G functionalization.

The following AFM data and figures reported the analysis of the surface before and after the functionalization. The Gwyddion software has been used to analyse the pictures and create a mask in order to characterize the surface and the background in Figure S5-7 separately (the pictures used for the mask is Figure 4e).



a



b

Figure S2. a) Height distribution of Figure 2a; b) Height distribution of Figure 2c.

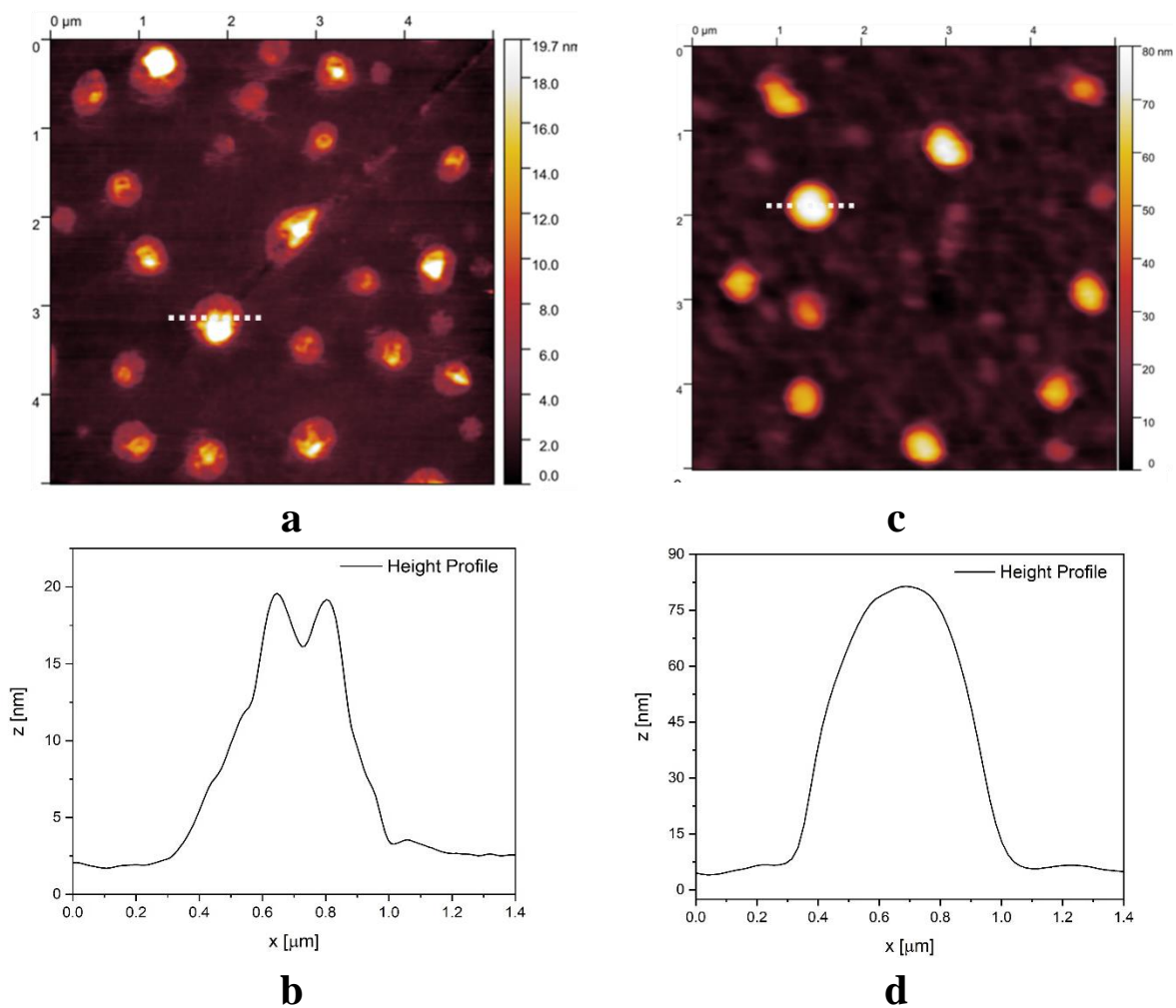


Figure S3. a) AFM image of GOPS-PG-IgG; b) height profile of the dotted line in (a); c) AFM image of GOPS-PG-IgG-ADPP; d) height profile of the dotted line in (c).

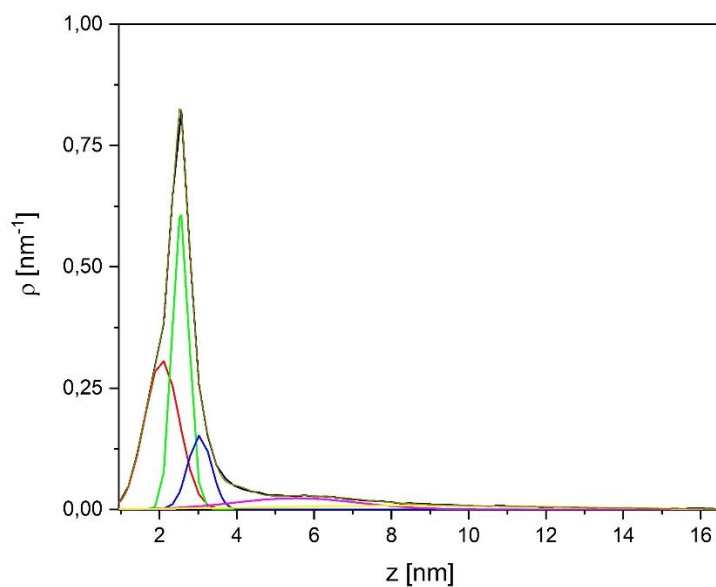


Figure S4. Height distribution of figure 4a GOPS-PG-IgG.

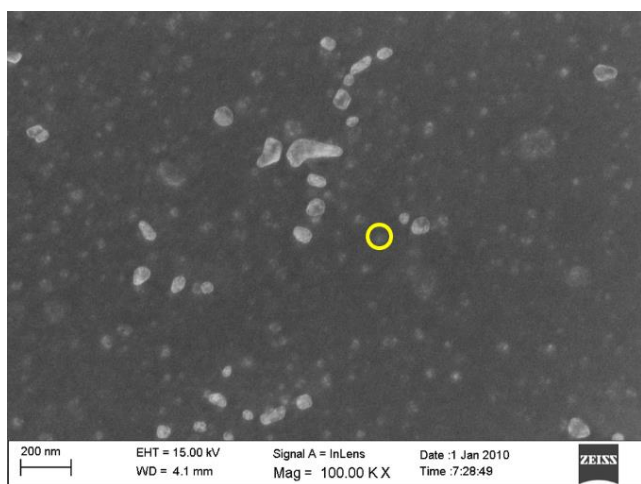
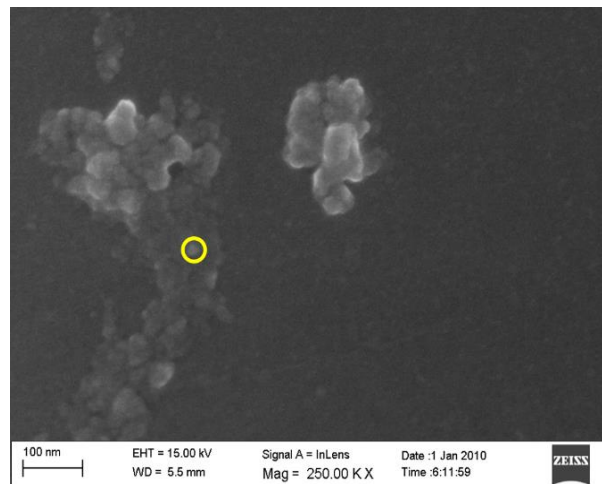
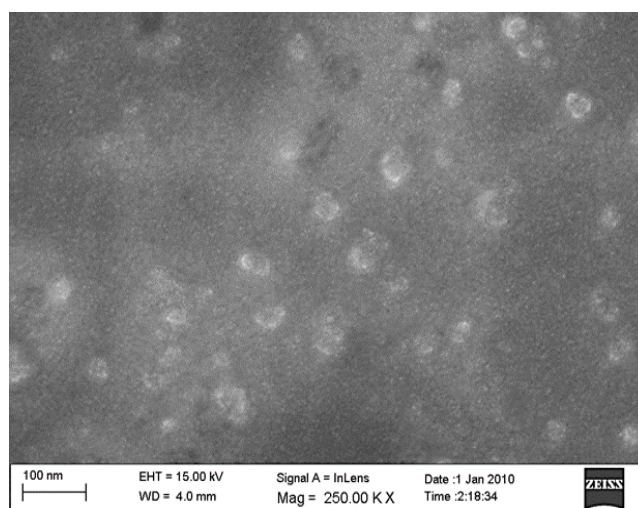
**a****b****c**

Figure S5. SEM analysis of GOPS-PG-IgG (a), GOPS-IgG (b) and GOPS-PG-IgG-ADPP (c) surfaces.

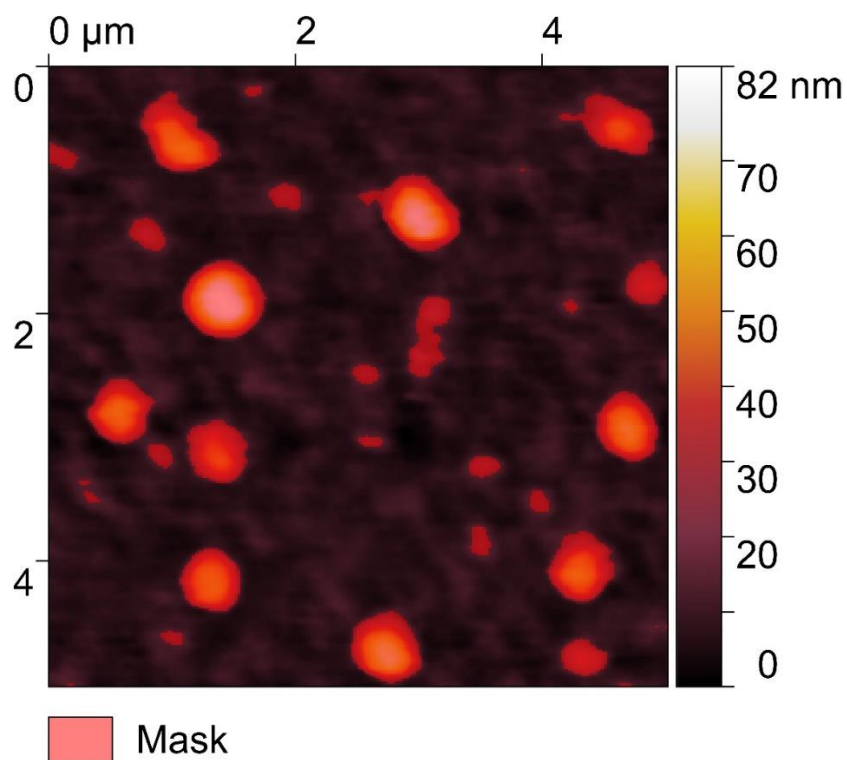


Figure S6. Masked AFM topographic image of Figure 4d.

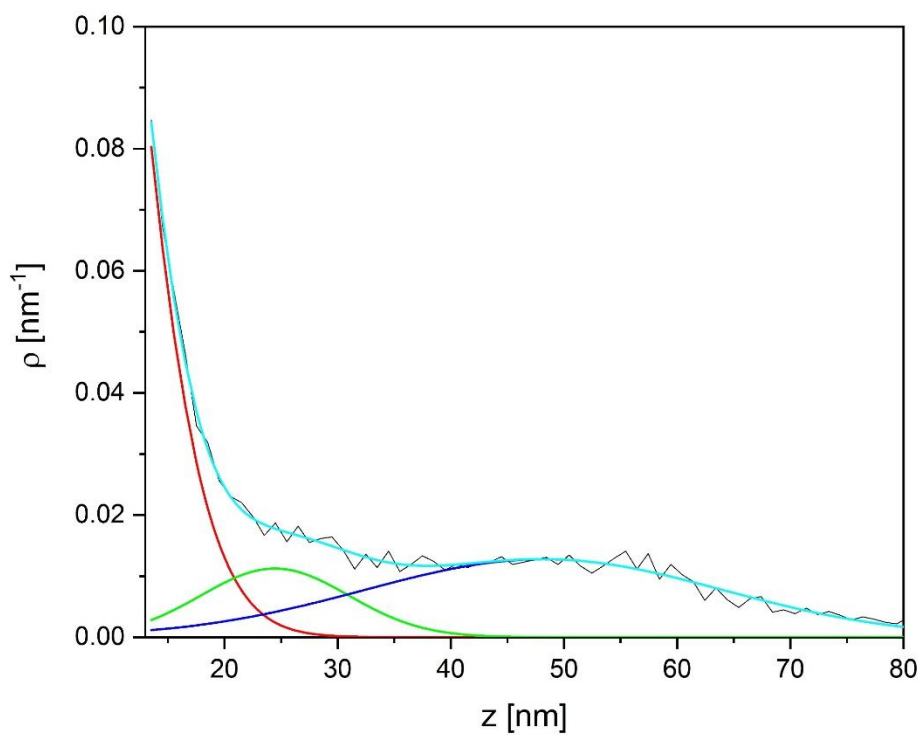


Figure S7. Height distribution of Figure 4d of the masked structures.

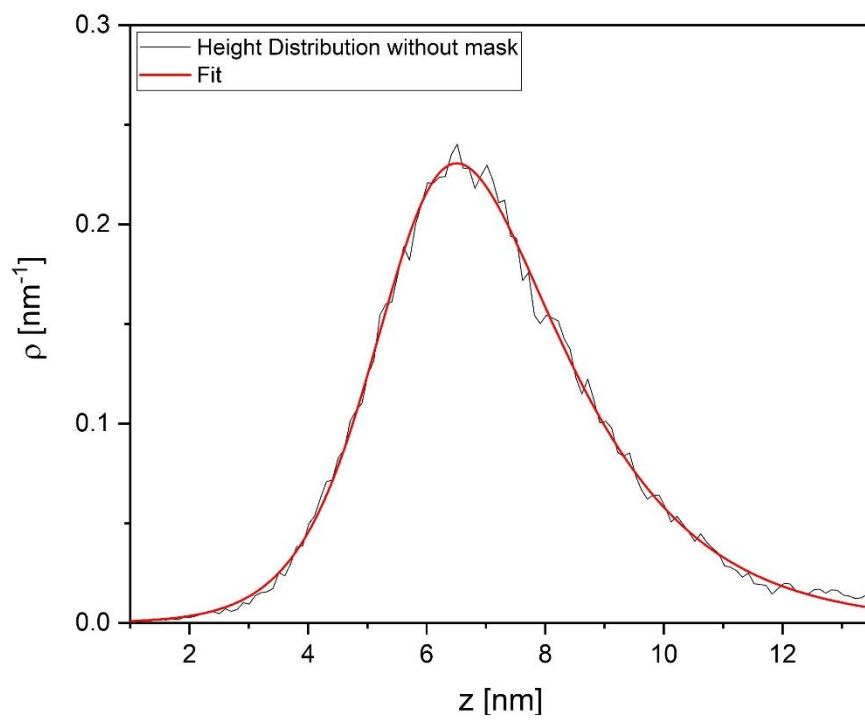


Figure S8. Height distribution of Figure 4d of the unmasked surface.