Electronic Supplementary Material (ESI) for Nanoscale Advances.

Supplementary Data

Localized surface plasmon resonance-based sensing of beta amyloid fibrillation using Au nano-urchins

Radhika V Nair, Pae Jian Yi, Parasuraman Padmanabhan, Balazs Gulyas and V M Murukeshan

[1]Center for Optical and Laser Engineering (COLE), School of Mechanical and Aerospace Engineering
Nanyang Technological University (NTU), Singapore – 639798
[2]Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore – 639798

Absorption spectrum of PBS and $A\beta_{1-42}$ mixture

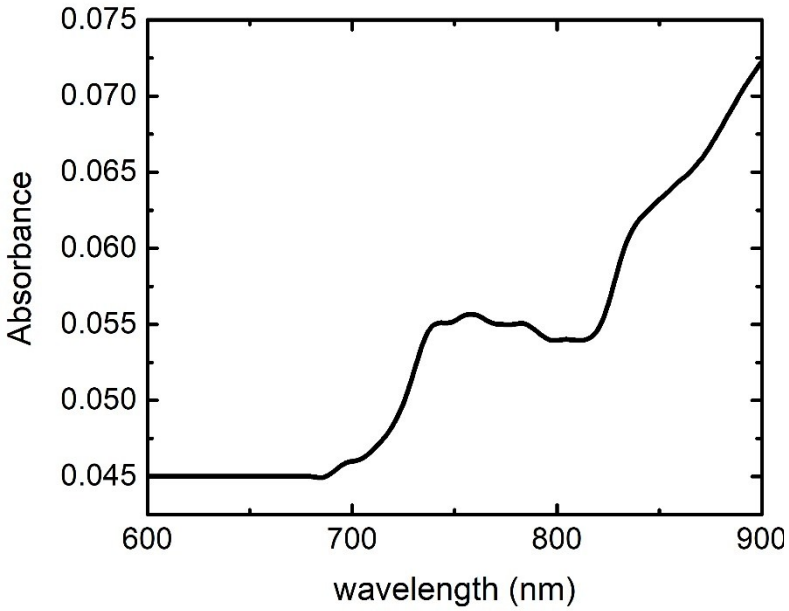

Figure 1. Optical absorption spectrum of PBS and $A\beta_{1-42}$ mixture

Optical absorption spectrum of PBS and $A\beta_{1-42}$ mixture is shown in figure 1. Absorption over the range 700 nm to 800 nm is clearly visible from figure 1.

LSPR sensing of beta amyloid fibrillation at various Au urchin and $A\beta_{1-42}$ concentration

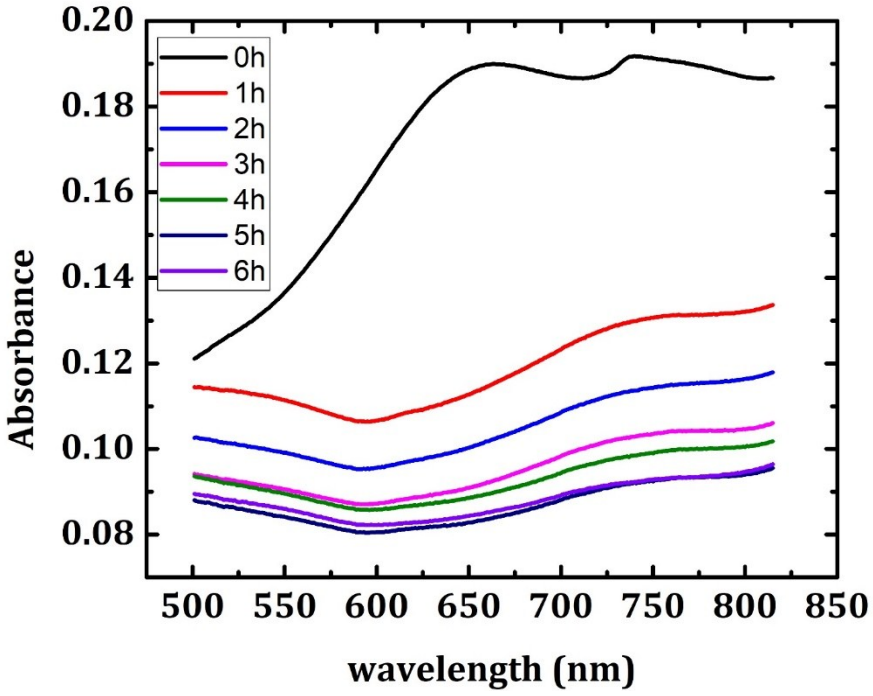

Figure 2. LSPR based sensing of beta amyloid fibrillation for sample set 1

Sample set 1 is prepared by mixing 400µl of Au nano-urchins and 100 µl of $A\beta_{1-42}$ with PBS. Absorbance plot of the sample is shown in figure 2. In this case, LSPR peak at 650 nm is observed to vanish after one hour. Lack of distinguishable LSPR peak can be due to fast aggregation of $A\beta_{1-42}$ and reduced concentration of Au nano-urchins. In order to check the influence of Au nano-urchin and beta amyloid concentration, experiment is repeated with 500µl of Au nano-urchins and 50µl of $A\beta_{1-42}$ concentration (sample set 2).

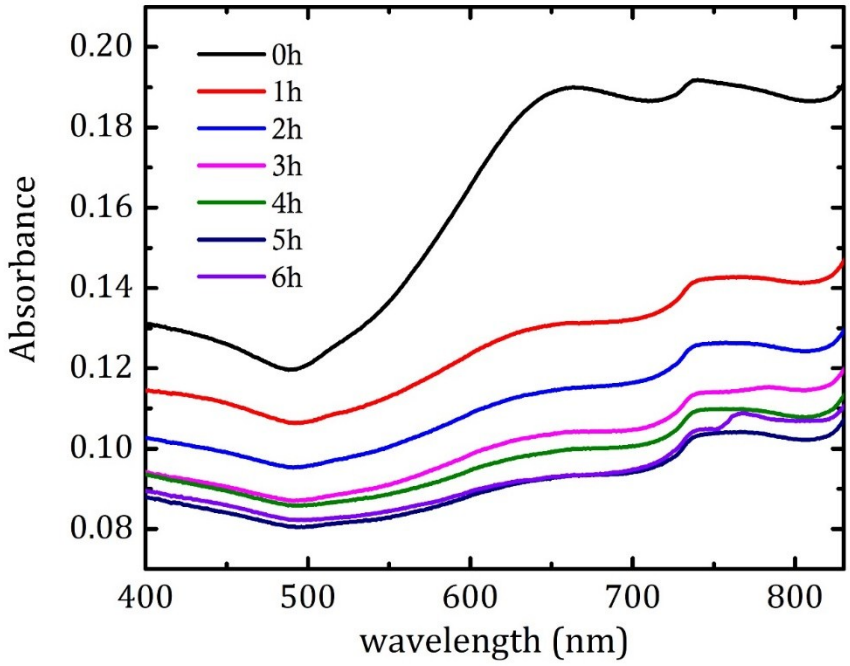

Figure 3. LSPR based sensing of beta amyloid fibrillation for sample set 2

Figure 3 shows absorbance plot for sample set 2. Though LSPR peak is clear, various stages of beta amyloid fibrillation are not distinguishable. Hence the experiment is repeated at shorter time intervals (5 minutes) and the results are provided in the manuscript.