Electronic supplementary information

Pursuing shell-isolated nanoparticle-enhanced Raman spectroscopy (SHINERS) for concomitant detection of breast lesions and microcalcifications

Chao Zheng[1, 2]†, Wanting Shao[1]†, Santosh Kumar Paidi[2], Bing Han[1], Tong Fu[1], Di Wu[1], Lirong Bi[3], Weiqing Xu[4], Zhimin Fan[1]* and Ishan Barman[2, 5]*

[1]Department of Breast Surgery, The First Hospital of Jilin University, Changchun 130021, China

[2]Department of Mechanical Engineering, Johns Hopkins University, Baltimore, Maryland 21218, USA

[3]Department of Pathology, The First Hospital of Jilin University, Changchun 130021, China

[4]State Key Laboratory for Supramolecular Structure and Materials, Jilin University, Changchun 130012, China

[5]Department of Oncology, Johns Hopkins University, Baltimore, Maryland 21287, USA

†These authors contributed equally to this work.

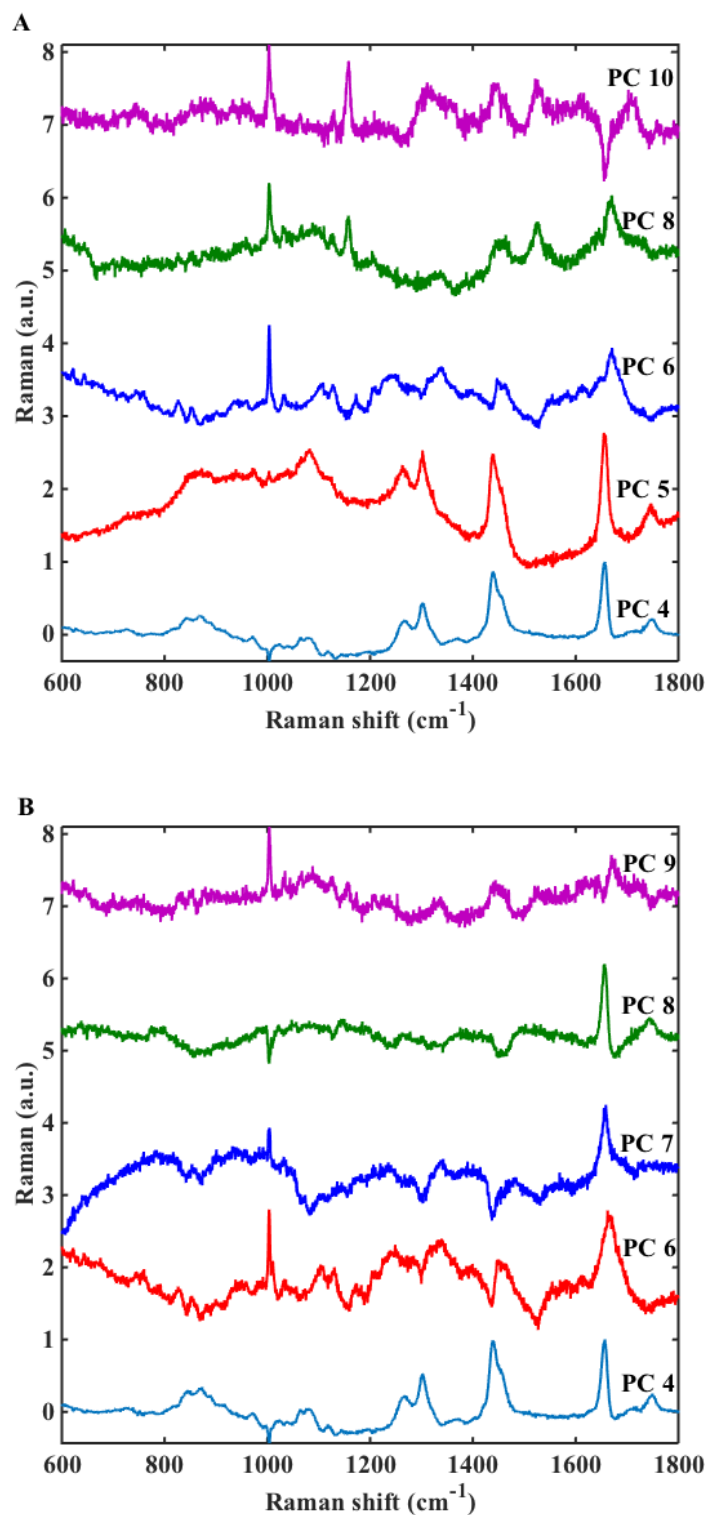*Corresponding authors: fanzhimn@163.com & ibarman@jhu.edu

Fig. S1 The principal component loadings (PCs) used to draw radial visualization plots used in Fig. 4. (A) Spontaneous Raman spectra from tissues without microcalcifications; (B) SHINERS spectra from tissues without microcalcifications
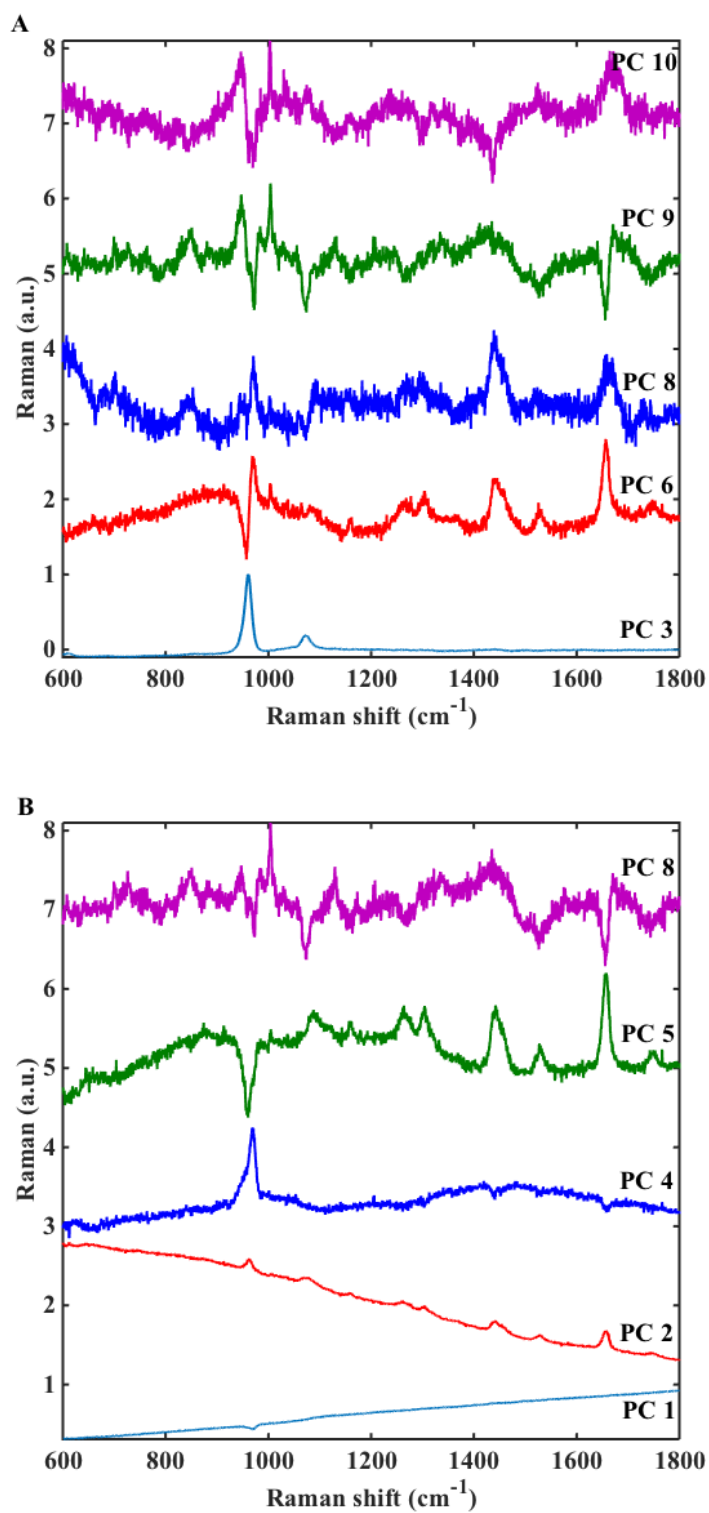
Fig. S2 The principal component loadings (PCs) used to draw radial visualization plots used in Fig. 6. (A) Spontaneous Raman Spectra from tissues exhibiting

microcalcifications; (B) SHINERS spectra from tissues exhibiting microcalcifications