Supporting Information

Dopamine-melanin nanofilms for biomimetic structural coloration

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Ruptures caused by granules under dopamine-melanin film. The dopamine-melanin film was burst by the underlying granules as shown in Figure S1.

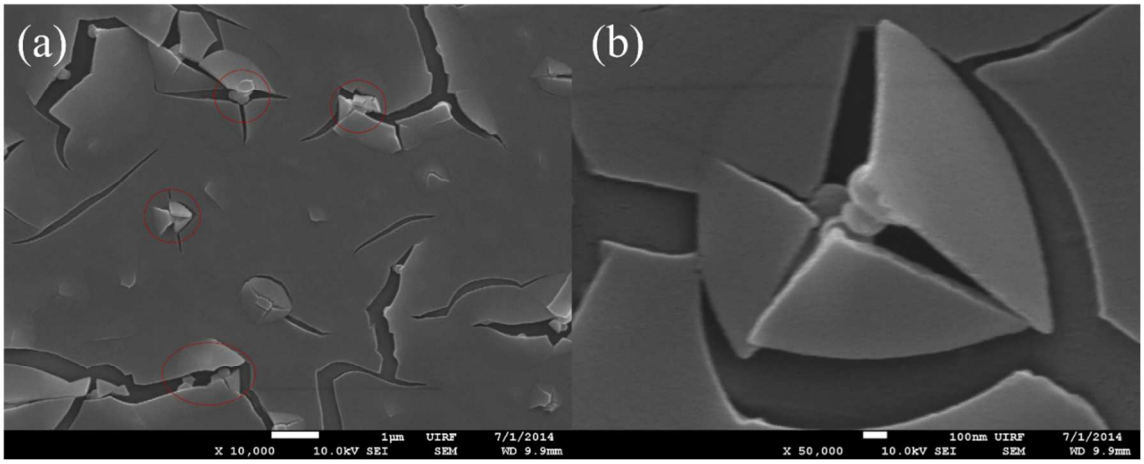

Figure S1. FE-SEM images of the top surface of dopamine-melanin film prepared from Tris0.01M solution at two magnifications.

X-ray photoelectron spectrometry (XPS) curve fitting. CasaXPS software was used to perform data fitting with a Gaussian-Lorentzian product function (Gaussian/Lorentzian ratio = 70/30) and a linear background subtraction for insulator. The results are shown in Figure S2.

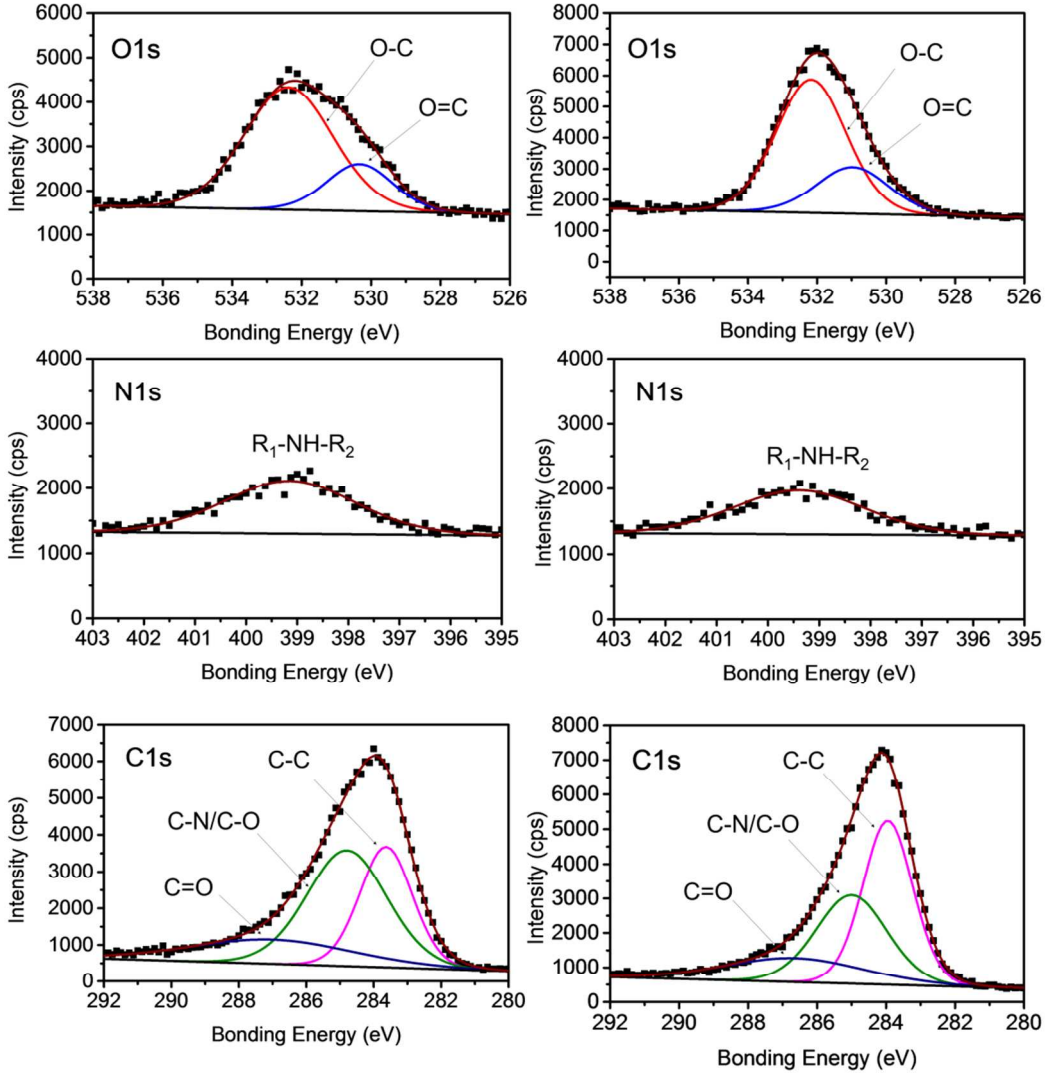

Figure S2. XPS spectra of O1s, N1s and C1s of the dopamine-melanin granules (left) and film (right).

Film thickness measurements. The thicknesses of dopamine-melanin films were measured from their FE-SEM cross section images. The example to measure the film thickness was shown in red (Figure S3 and S4). The means of five different measurements and standard deviations were calculated and summarized in Figure 5a and 5b, respectively.

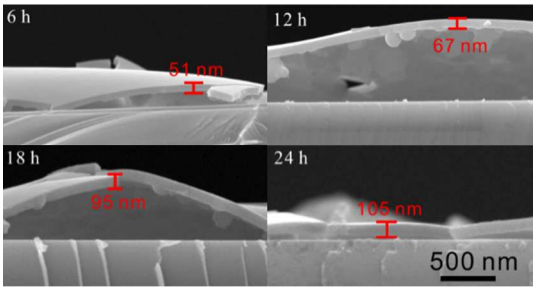

Figure S3. FE-SEM cross section images of dopamine-melanin films prepared from Tris0.01M solution with an increasing reaction time.

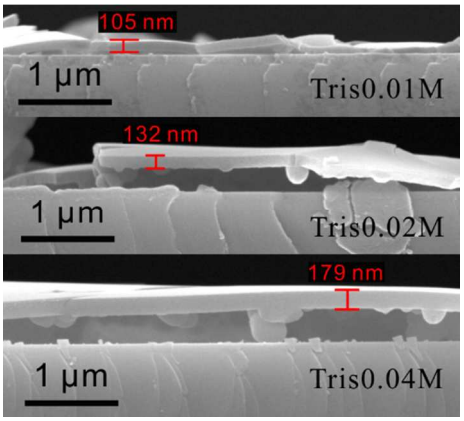

Figure S4. FE-SEM cross section images of dopamine-melanin films (the reaction time = 24 h).