

## Supporting information

### Melanin-Mimetic Multicolor and Low-toxic Hair Dye

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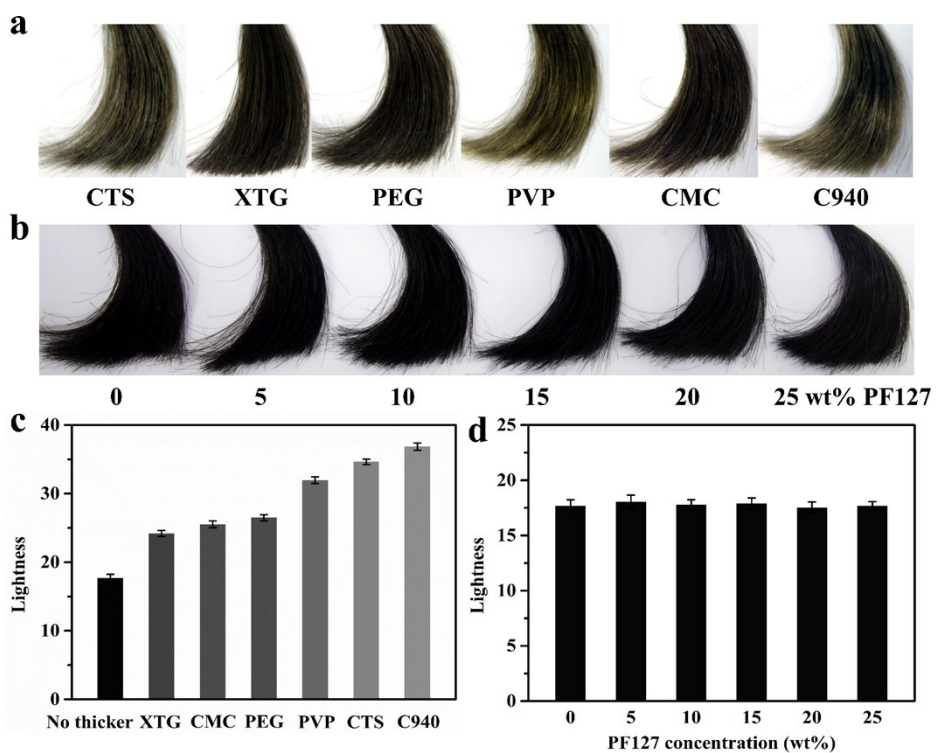
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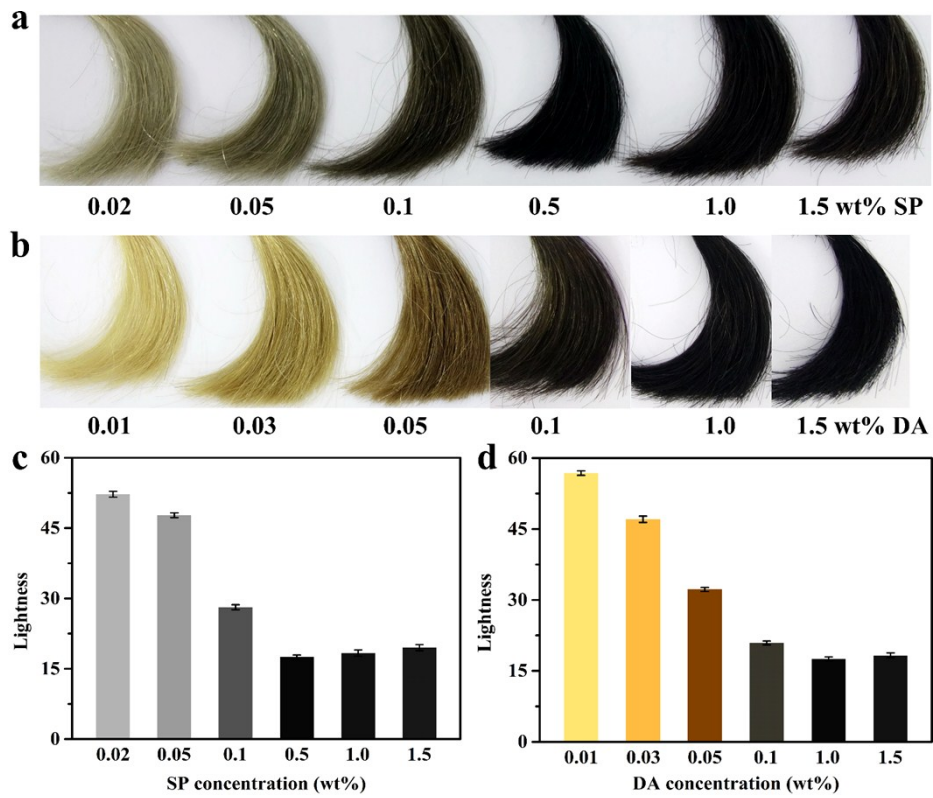
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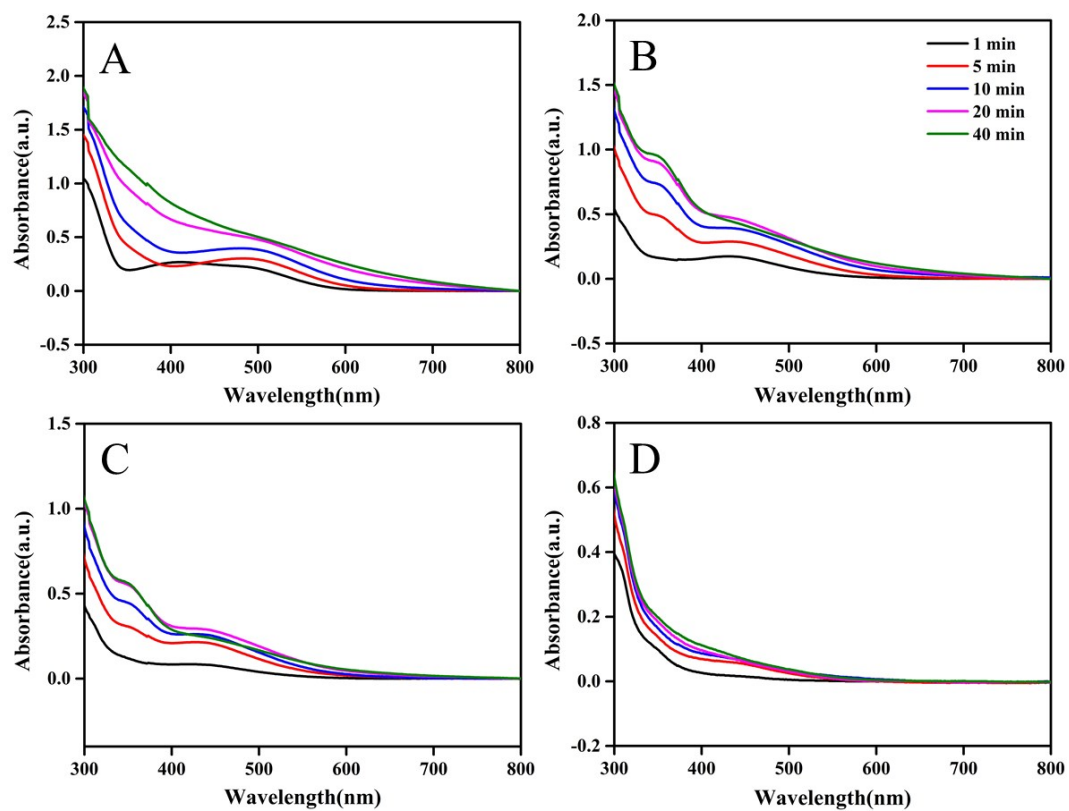
<sup>‡</sup> These authors contributed equally



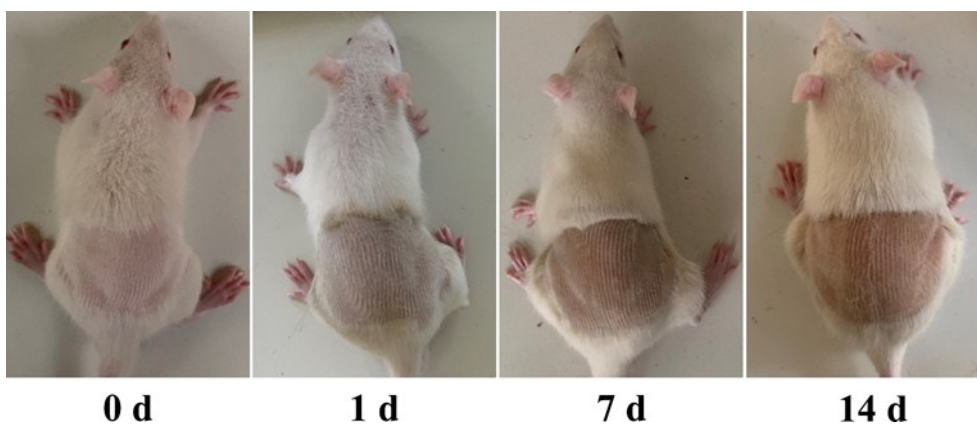
**Figure S1** (a) Photographs and (c) lightness of PDA coated hair in the presence of common thickeners, including chitosan (CTS), xanthan gum (XTG), polyethylene glycol (PEG), polyvinylpyrrolidone (PVP), sodium carboxymethylcellulose (CMC) and carbomer 940 (C940). (b) Photographical images and (d) lightness of PDA coated hair obtained in the presence of different concentration of PF127.



**Figure S2** Photographical images and lightness of PDA/PF127 hydrogel coated hair obtained by using different concentration of SP and DA.



**Figure S3** Time-dependent UV-visible spectra of PDA/cysteine solutions with different cysteine mass ratio in 40 min. DA, SP and cysteine were co-dissolved in the sodium acetate buffer (50 mM, pH=5). Samples: (A) PDA without cysteine; (B) PDA/cysteine 2:1; (C) PDA/cysteine 1:1; (D) PDA/cysteine 2:3.



**Figure S4** Photographs of typical mice treated with PDA/PF127 hydrogel for 0, 1, 7, and 14 days.

**Table S1.** The skin reaction and mortality for the acute dermal toxicity test of the PDA based hair colorants. <sup>[a]</sup>

Materials	Erythema/Oedema				Death			
	0 d	1d	7d	14d	0 d	1 d	7 d	14 d
PDA solutions	-	-	-	-	-	-	-	-
PDA hydrogels	-	-	-	-	-	-	-	-

[a] “-” no erythema, oedema or death.