

Supporting information

Application of Surface Enhanced Raman Spectroscopy as a Diagnostic System for Highly Sensitive Monitoring the Evolution of the Condition of Subarachnoid Hemorrhage-induced Complications

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A	Name	a	b	c	d
	Chloroauric Acid (mL)	10	10	10	10
	Au seed (μL)	50	100	150	200
	Hydroquinone (μL)	500	500	500	500

B	Name	a	b	c	d
	Chloroauric Acid (μL)	5	10	15	20
	Au seed (μL)	100	100	100	100
	Hydroquinone (μL)	500	500	500	500
	H ₂ O (mL)	10	10	10	10

C	Name	a	b	c	d
	Chloroauric Acid (mL)	10	10	10	10
	Au seed (μL)	100	100	100	100
	Hydroquinone (μL)	200	300	400	500

Fig.S1 Different conditions control growth.

All indium tin oxide conductive glass slips were washed with aqua regia and with ultrapure water for at least five times. The slips were further cleaned in ethanol with sonication for three times and dried at 70 °C for 2 h in an air oven. The cleaned indium tin oxide conductive glass slips were vertically immersed in a 1 % (v/v) ethanol solution of γ -amino-propyl-triethoxysilane in anhydrous ethanol at 70 °C for 2 h, three times in ethanol with sonication to remove silane excess, and dried for 2 h at 100 °C in an air oven.

For the fabrication of the biosensor, slips were vertically dipped 6 h, 9 h, 12 h and 24 h into the colloidal suspension of GNSs under gentle stirring to obtain the GNSs layers. Finally, the substrate was washed with ultrapure water three times and dried for 30 min at 60 °C.

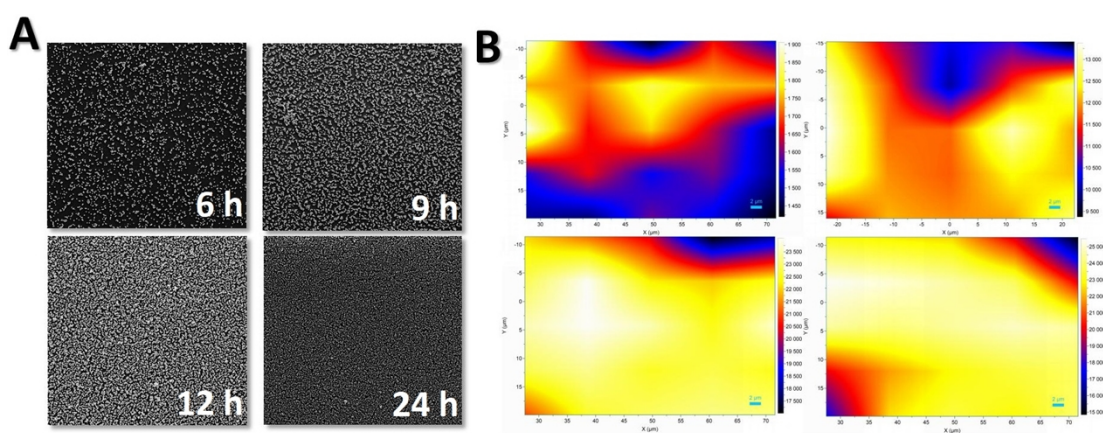


Fig. S2 (A) SEM image of GNSs array platform. (B) SERS mapping of different modified times of 4-MPA obtained from the GNSs array platform.

Rat SAH models were established by endovascular perforation method respectively.

The endovascular perforation (EP) SAH model was produced as previously reported(Wang et al. 2019). Briefly, rats were anesthetized by chloral hydrate (350 mg/kg body weight). A sharpened 4-0 monofilament nylon suture was inserted rostrally into the left internal carotid artery and perforated the bifurcation of the anterior and middle cerebral arteries until resistance was felt(Li et al. 2018). The suture was withdrawn with induction of SAH. Sham-operated groups underwent the same procedures except for puncture.



Fig.S3 Building SAH animal models.