

**Supporting Information**

**Stealth Surface Modification of Surface-Enhanced Raman  
Scattering Substrates for Sensitive and Accurate Detection in  
Protein Solutions**

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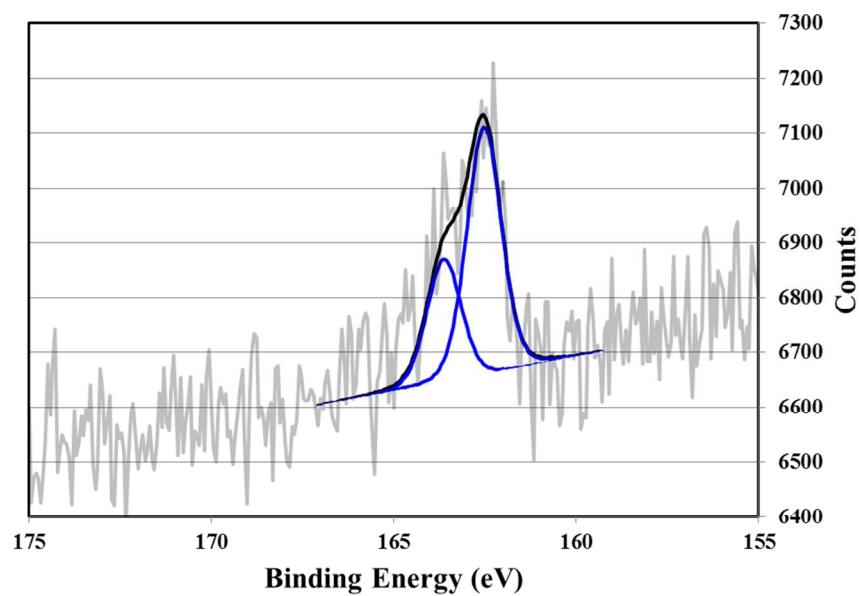
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**Table S1. SERS Vibrational Frequencies for 4-MPBA and CBT**

4-MPBA		CBT	
SERS (cm <sup>-1</sup> )	Assignments <sup>a</sup>	SERS (cm <sup>-1</sup> )	Assignments <sup>a</sup>
420	7a; $\beta_{\text{CCC}} + \nu_{\text{CS}}$	455	$\gamma_{\text{NC}}$
473	16b; $\gamma_{\text{CCC}} + \beta_{\text{OBO}}$	520	Si
614	6b; $\beta_{\text{CCC}} + \beta_{\text{OBO}}$	672	$\nu_{\text{CS}}$
694	6a; $\beta_{\text{CCC}} + \nu_{\text{CS}}$	756	$\nu_{\text{C4N}}^+$
728	4b; $\gamma_{\text{CCC}}$	847	$\beta_{\text{CSAu}}$
754	11; $\gamma_{\text{CH}}$	891	$\nu_{\text{CCOO}^-} + \nu_{\text{CC}}$
1000	12; $\beta_{\text{CCC}}$	935	$\beta_{\text{HCH}}$
1024	18a; $\beta_{\text{CH}}$	1079	$\nu_{\text{C4N}}^+$
1065	$\nu_{\text{CS}}$	1132	$\beta_{\text{CH3}}$
1075	1; $\beta_{\text{CCC}}$	1246	$\gamma_{\text{CH2}}$
1187	9a; $\beta_{\text{CH}} + \beta_{\text{BOH}}$	1365	$\nu_{\text{COO}^-}$
1283	3; $\beta_{\text{CH}} + \beta_{\text{BOH}}$	1448	$\gamma_{\text{CH3}}$
1472 <sup>b</sup>	19b; $\nu_{\text{CC}}$	1585	$\nu_{\text{COO}^-}$
1487	19a; $\nu_{\text{CC}}$		
1574 <sup>b</sup>	8b; $\nu_{\text{CC}}$		
1587	8a; $\nu_{\text{CC}}$		

<sup>a</sup>  $\nu$ ; stretching,  $\beta$ ; in plane bending,  $\gamma$ ; out of plane bending

<sup>b</sup> 8b and 19b non-totally symmetric ring-stretching vibrational modes increase while 8a and 19a totally symmetric ring-stretching vibrational modes decrease in SERS spectra of 4-MPBA after fructose binding due to Herzberg-Teller contributions.



**Figure S1.** High-resolution XPS spectra of the S 2p region of pure CBT SAM. The peaks were fit using S  $2p_{3/2}$  and  $2p_{1/2}$  with a 2:1 area ratio and a splitting of 1.2 eV. Only the binding energy of S  $2p_{3/2}$  at 162.0 eV for the surface bounded sulfur was obtained, indicating that a good CBT SAM was formed.