

Supporting information

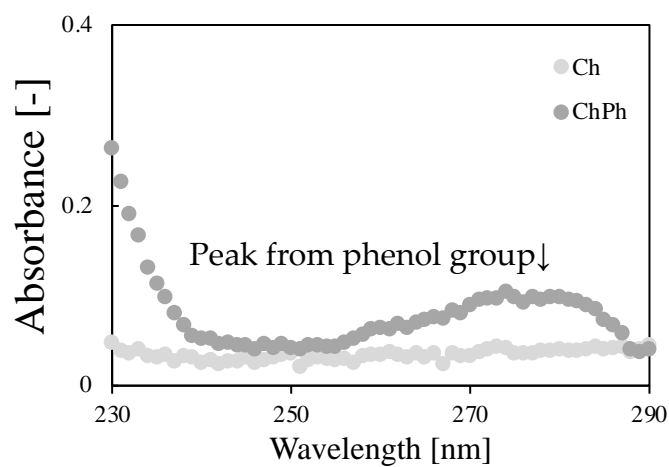


Figure S1. UV-vis spectrum of 0.1 wt% chitosan (Ch) and ChPh solution (solvent: 20 mM HCl)

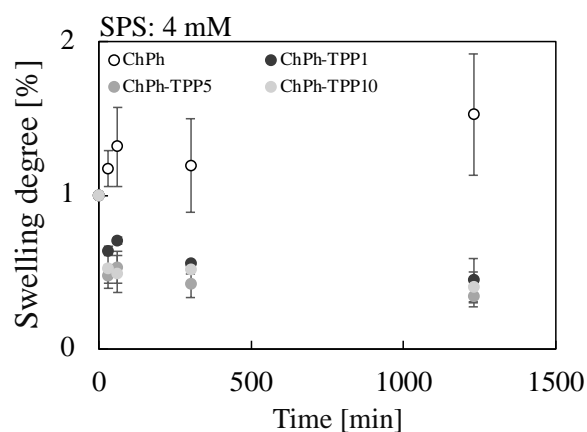


Figure S2. Time-course measurement of swelling degree of ChPh, ChPh-TPP1, 5, and 10 (n=3, Data:  $\pm$  S.D.)

**Table S1. Weight (mg) comparison of ChPh, ChPh-TPP1,5, and 10 after 5 h of immersion in PBS , n=3, Data:  $\pm$  S.D.**

SPS 1 mM	ChPh	ChPh-TPP1	ChPh-TPP5	ChPh-TPP10
0h	$126 \pm 40$	$118 \pm 10$	$90 \pm 16$	$84 \pm 19$
5h	$263 \pm 140$	$116 \pm 14$	$59 \pm 20$	$45 \pm 6$

SPS 2 mM	ChPh	ChPh-TPP1	ChPh-TPP5	ChPh-TPP10
0 h	$154 \pm 22$	$131 \pm 34$	$124 \pm 11$	$104 \pm 10$
5 h	$238 \pm 46$	$92 \pm 53$	$52 \pm 10$	$38 \pm 4$

SPS 4 mM	ChPh	ChPh-TPP1	ChPh-TPP5	ChPh-TPP10
0 h	$170 \pm 20$	$114 \pm 18$	$81 \pm 18$	$72 \pm 5$
5 h	$201 \pm 51$	$63 \pm 9$	$33 \pm 3$	$37 \pm 4$

**Table S2. Weight (mg) comparison of ChPh, ChPh-TPP1,5, and 10 after 5 h of incubation at 20 °C, n=5, Data:  $\pm$  S.D.**

	ChPh	ChPh-TPP1	ChPh-TPP5	ChPh-TPP10
0 h	$147 \pm 24$	$132 \pm 12$	$150 \pm 28$	$107 \pm 27$
5 h	$26 \pm 11$	$61 \pm 23$	$58 \pm 20$	$32 \pm 11$