Supporting Information

Antibacterial and Hydroxyapatite-Forming Coating for Biomedical Implants Based on Polypeptide-Functionalized Titania Nanospike

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Fig. S1. $^1$H-NMR spectra of A) dopamine in D$_2$O, B) TBS-protected dopamine in CDCl$_3$, C) TBScPep(z) in DMSO-$d_6$ and D) cPep in D$_2$O.
**Fig. S2.** A) UV-vis spectra of the dopamine solution. B) Standard curve of the dopamine solution. C) UV-vis spectra of the Pep (black) and cPep (violet) solution. D) The formula for calculating the molecular weight of cPep.
**Fig. S3.** SEM images of the TNC surface before and after the ultrasound treatment (30 min, ambient temperature).
Table S1. MIC of the Pep and cPep against different types of bacteria.

<table>
<thead>
<tr>
<th>Polymers</th>
<th>Gram-positive</th>
<th>Gram-negative</th>
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<tbody>
<tr>
<td></td>
<td>S. aureus</td>
<td>E. coli</td>
</tr>
<tr>
<td>Pep(^b)</td>
<td>31/9</td>
<td>31/9</td>
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<tr>
<td>cPep</td>
<td>31/9</td>
<td>31/9</td>
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\(^a\)The lowest compound concentration that inhibits bacteria growth, \(^b\)Pep: Lys(NH\(^3+\))\(_{12.5}\)-r-Phe\(_{12.5}\).