**In Vitro** detection of calcium in bone by modified carbon dots

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Supporting Information

![FTIR spectra of HA, CD and HAGACD](Image)

**Fig S1.** FTIR spectra of HA, CD and HAGACD
Fig S2. Thermograms of HA and HAGACD (at 10°C min$^{-1}$, in N$_2$ atmosphere)

Fig S3. A and B HRTEM micrographs of CD and C and D TEM micrographs of HAGACD
Fig S4. DLS profile of HAGACD

Fig S5. A) UV-Visible absorption and B) Fluorescence excitation spectra of CD and HAGACD
Fig S6. PVA films containing A) 0.02M Ca\(^{2+}\) B) 0.25M Ca\(^{2+}\) C) 0.5M Ca\(^{2+}\) incubated with HAGACD.

Fig S7. Fluorescence emission of HAGACD solutions after removing the incubated polymer strips. Intensity remains the same of solutions treated with polymer strips containing 2 M and 3 M reflecting saturation in binding.
Fig S8. Intensity index Vs calcium ion concentration of the residual HAGACD

Fig S9. Fluorescence emission of HAGACD in presence of Ca
<table>
<thead>
<tr>
<th>Sample code</th>
<th>Zeta Potential (mV)</th>
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<tbody>
<tr>
<td>CD</td>
<td>-20.9</td>
</tr>
<tr>
<td>HAGACD</td>
<td>-0.579</td>
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