Supplementary data

Nitrogen doped carbon dots: mechanism investigation and their application for label free CA125 analysis

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Fig. S1 Infrared spectroscopy of the N-CDs.

Fig. S2 The fluorescence stability of N-CDs under (A) various pH values, (B) different concentrations of NaCl. (C) Emission spectrum of N-CDs freshly prepared (black line) and after one week (red line) and two weeks storage (blue line) at room temperature.
Fig. S3 Fluorescence spectra of (a) ethanediamine, (b) CDs and (c) N-CDs. Inset shows the corresponding fluorescent image under UV lamp.

Fig. S4 (A) XPS survey of CDs and N-CDs. (B) the relative contents of C, N and O elements for CDs and N-CDs. (determined by XPS)
Fig. S5 Zeta potentials of N-CDs, N-CDs+CA125-aptmer and N-CDs+ CA125-aptmer+ CA125.
Fig S6 TEM image of the N-CDs after adding CA125-aptamer.

Fig. S7 AFM image of the heights or sizes of N-CDs after interaction with CA125-aptamer.
<table>
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<th>Method</th>
<th>Material</th>
<th>Detection limit</th>
<th>Ref.</th>
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<td>Fluorescence</td>
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**Reference**


### Table S2 Detection of CA125 in human serum.

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