

1 **Supporting information**

2 **“Turn on” room-temperature phosphorescent biosensors for**
3 **detection of hyaluronic acid based on manganese-doped ZnS**
4 **quantum dots**

5 **Dongxia Li, Jin Qin, Jinzhi Lv, Jiajia Yang, Guiqin Yan***

6 *Shanxi Normal University, Linfen 041004, PR China*

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* Corresponding author. Fax: (86)0357-2051249. E-mail: gqyan2013@163.com

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25 **Table S1** Tolerance of foreign substances

Coexisting substance	Tolerance ratio	Variation of calculated value (%)
NaCl	1000	+2.3
KCl	1000	+4.6
MgCl ₂	100	-5.1
CaCl ₂	100	+1.4
Glucose	300	-4.0
Arginine	500	+2.7
Cysteine	500	-3.5
BSA	50	+1.6
HSA	50	+4.8
Insulin	50	+3.2
ALP	50	+4.4
DNA	50	-3.3

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32 **Fig. S1** (A) TEM image of MPA-capped Mn-doped ZnS QDs. (B) Size distribution of
33 MPA-capped Mn-doped ZnS QDs in diameter.

34 **Fig. S2** XRD images of MPA-capped Mn-doped ZnS QDs.

35 **Fig. S3** TEM image of PDAD-Mn-ZnS QDs;

36 **Fig. S4** (A) Effect of pH values on the RTP emission of the PDAD-Mn-ZnS QDs
37 system. (B) The time-dependent RTP emission of the PDAD-Mn-ZnS QDs by HA
38 ($2.8 \mu\text{g mL}^{-1}$). The concentration of PDAD-Mn-ZnS QDs is $10 \mu\text{g mL}^{-1}$.

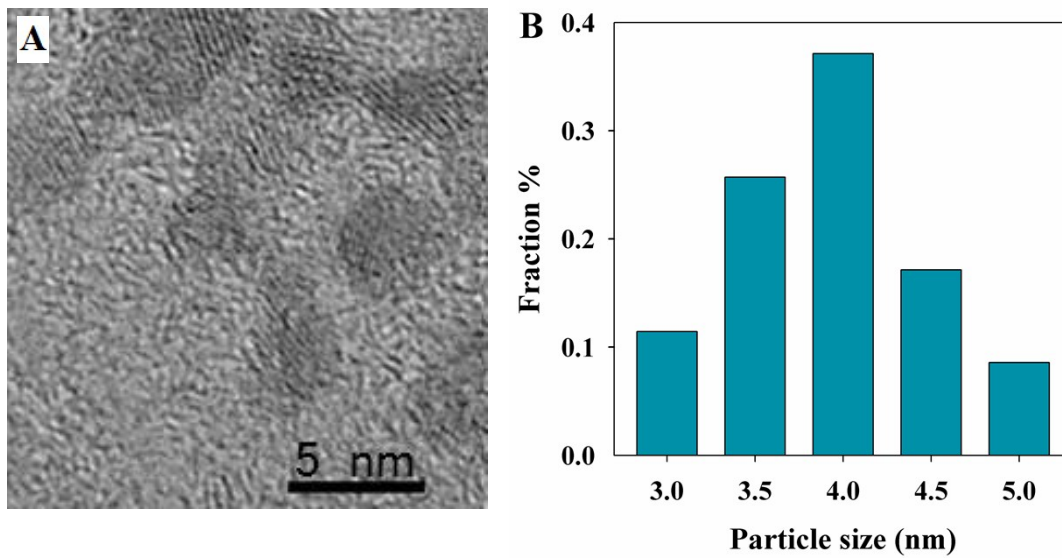
39 **Fig. S5** TEM image of PDAD-Mn- ZnS QDs/HA;

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44 **Fig. S1**



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46 Fig. S1 (A) TEM image of MPA-capped Mn-doped ZnS QDs. (B) Size distribution of

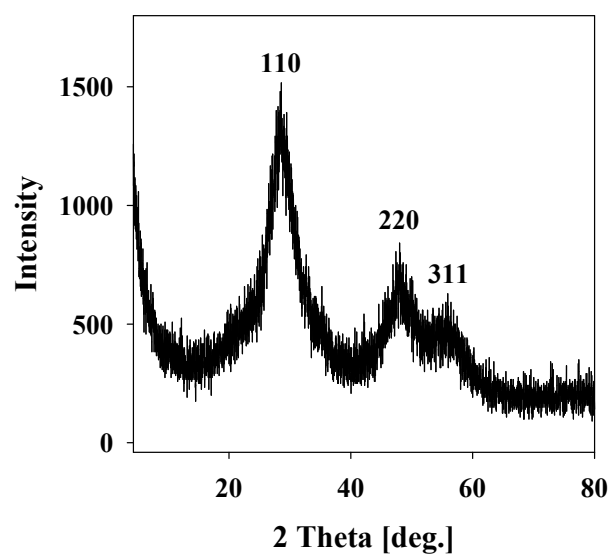
47 MPA-capped Mn-doped ZnS QDs in diameter.

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52 **Fig. S2**



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54 Fig. S2 XRD images of MPA-capped Mn-doped ZnS QDs.

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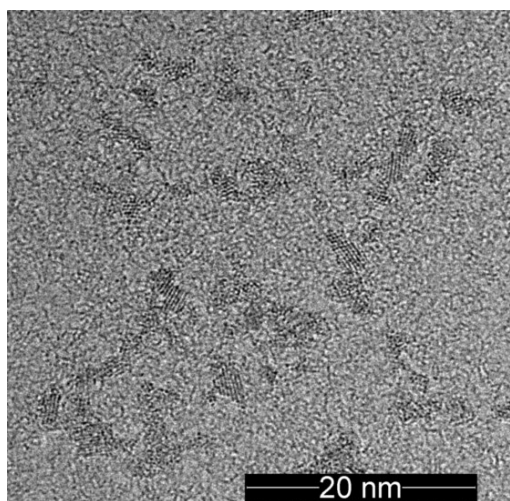
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61 **Fig. S3**

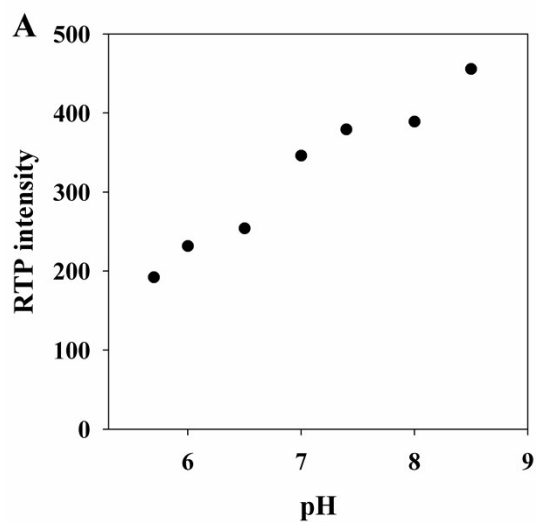


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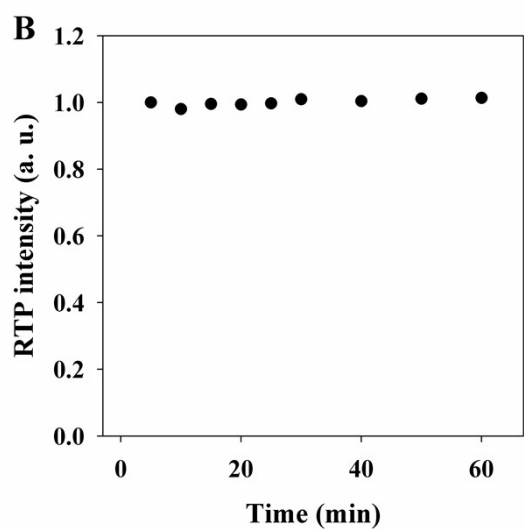
63 Fig. S3 TEM image of PDAD-Mn-ZnS QDs;

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67 Fig. S4



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69 Fig. S4 (A) Effect of pH values on the RTP emission of the PDAD-Mn-ZnS QDs

70 system. (B) The time-dependent RTP emission of the PDAD-Mn-ZnS QDs by HA

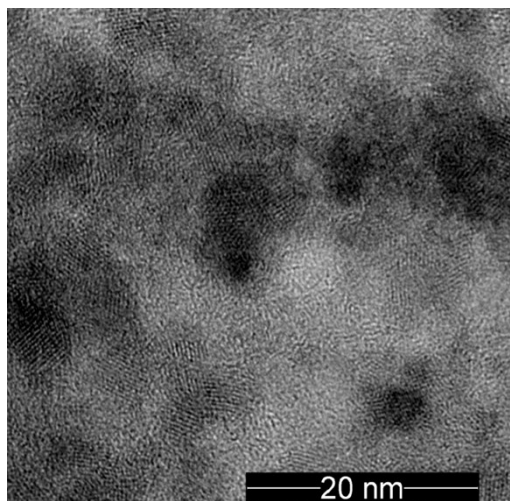
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76 **Fig. S5**



77 Fig. S5 TEM image of PDAD-Mn- ZnS QDs/HA;

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