

A new peptide-based fluorescent probe selective for zinc (II) and copper (II)

Giuliana Donadio^a, Rita Di Martino^a, Rosario Oliva^b, Luigi Petraccone^b, Pompea Del Vecchio^b, Blanda Di Luccia^a, Ezio Ricca^a, Rachele Isticato^a, Alberto Di Donato^a and Eugenio Notomista^{a*}

^aDepartment of Biology University of Naples Federico II, Via Cintia, 80126, Naples, Italy.

^bDepartment of Chemistry University of Naples Federico II, Via Cintia, 80126, Naples, Italy

*Corresponding author (notomist@unina.it)

Electronic supplementary information (ESI)

<i>Papio anubis</i> (olive baboon)	<i>Pan paniscus</i> (bonobo)	<i>Felis catus</i> (cat)	<i>Panthera tigris</i> <i>altaica</i> (tiger)	<i>Capra hircus</i> (goat)
346	345	338	338	354
NSSDL	NSSDL	NRTHG	NRIHG	PPFGT
HPHKH	HPHKH	HPHNH	HPHNH	NGKHR
HSHEH	HSHEQ	SSSKH	SSSKH	PPHDH
HPHGH	HPHGH	HPHGP	HPHGP	SSDEH
HPHAH	HPHAH	PPHGH	PPHGH	HPHGH
HPHKH	HPHEH	HPHGH	HPHGH	HPHEH
GTHRQ	DTHRQ	HPHGP	HPHGP	HPHKH
HPHGH	HPHGH	PPHGH	PPHGH	HPHGH
HPHGH	HPHGR	HPYGH	HPHGH	HPHGH
HPHGH	HPHGH	HPHGP	HPHGP	HPHEH
HPHGH	HPHGH	PPHGH	PPHGH	HPHGH
HPHGH	HPHGH	HPHRH	HPHGH	HPHGH
HPHCH	HPHCH	HPHGH	HPHGP	HPHGH
DFQDY	DFQDY	HPHGH	PPHGH	HPHGH
		PPHGH	HPHRH	HPHGH
415	414	HPHRH	HPHGH	HPHRH
		HPHGH	HPHGH	HPHDH
		HPHGH	HPHGH	DFYDH
		DFLDH	DFLDH	
				443
		432	432	
<i>Ovis aries</i> (sheep)	<i>Camelus dromedarius</i> (dromedary)	<i>Mus musculus</i> (mouse)	<i>Rattus norvegicus</i> (rat)	<i>Oryctolagus cuniculus</i> (rabbit)
354	347	326	329	312
PPFGT	SSSEH	RPSYN	HNHSCNE	CRHRPFGTNE
KGKHR	HPYGH	HSCNE	HPCHGQ	THRFPHHRNF
PPHDH	RPHGH	HPCHG	HP-HGH	SEHHPHGPPP
SSDGH	HPHGH	HRPHGH	HP-HGQ	HGHHPHGPPP
HPHGH	HPHGH	H-PHSH	HP-HGH	HGHHPHGPPP
HPHGH	HPHGH	H-PPGH	HP-HGQ	HGHPPHGPPP
HPHGH	RPHGH	H-SHGH	HP-HGH	HGHPPHGPPP
HPHGH	HPHGH	H-PHGH	HP-HGQ	HGHPPHGPPP
HPHGH	HPHGH	H-PHSH	HP-HGH	HGHPPHGPPP
HPHGH	DFHDH	H-SHGH	HP-HGQ	HGHPPHGPPP
HPHDH	GPCDP	H-PPGH	HP-HGH	HGHPPHGPPP
DFYDH		H-PHGH	HP-HGH	HGHPPHG
	401	H-PHGH	HP-HGD	HGFHDHGP
413		H-PHGH	HP-HGH	CDPPSHKEGP
		H-PHGH	HP-HGH	
		H-PHGH	DFLDY	446
		DFLDY		
			411	
		411		

Fig. S1. Histidine rich regions of histidine rich glycoproteins from several mammals. Sequence is shown in blocks of five residues to highlight the repeats HPHGP except in the case of the rabbit HRG where a 10-residue repeat was identified [HGH(P/H)PHGPPP]. Conserved amino acids are in bold. Residue numbers refers to the precursors of the HRGs.

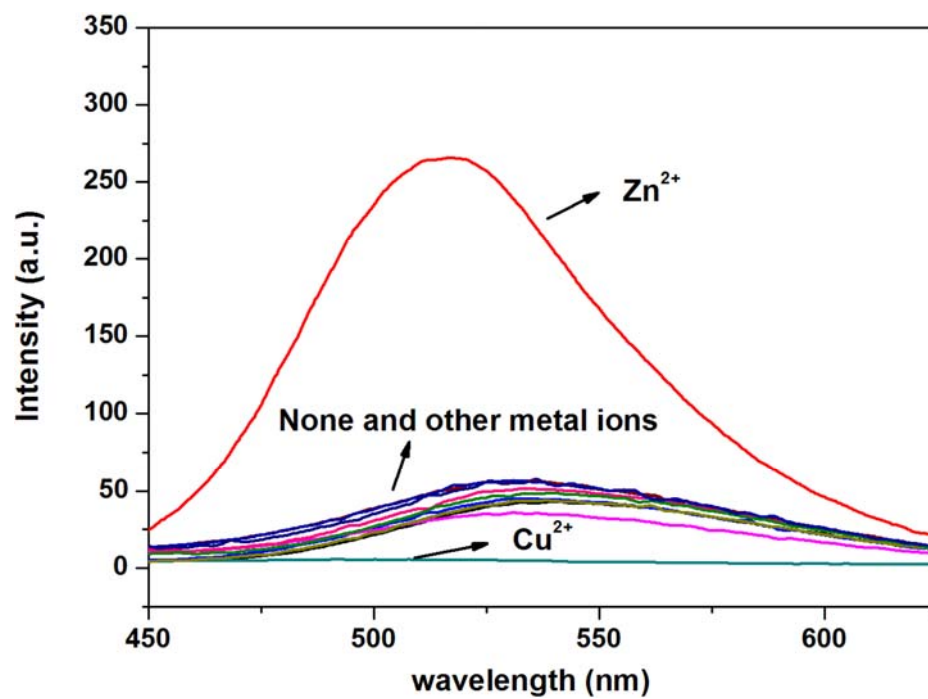


Fig. S2. Fluorescence emission spectra of dH3w (10 μM) in the presence of Zn^{2+} , Co^{2+} , Pb^{2+} , Cd^{2+} , Ni^{2+} , Mn^{2+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Ca^{2+} , Mg^{2+} , K^{+} or Na^{+} (50 μM) after excitation at 340 nm.

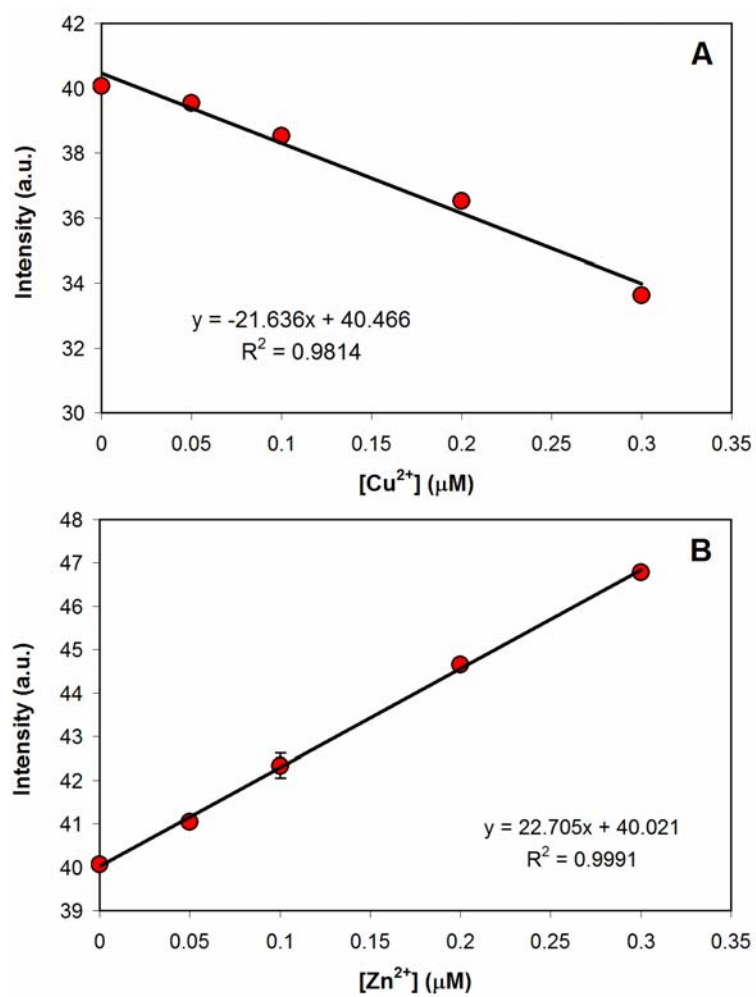


Fig. S3. Linear correlation between fluorescence intensity of dH3w and the concentration of Cu^{2+} (A) or Zn^{2+} (B). Error bars are shown only when larger than the symbol.

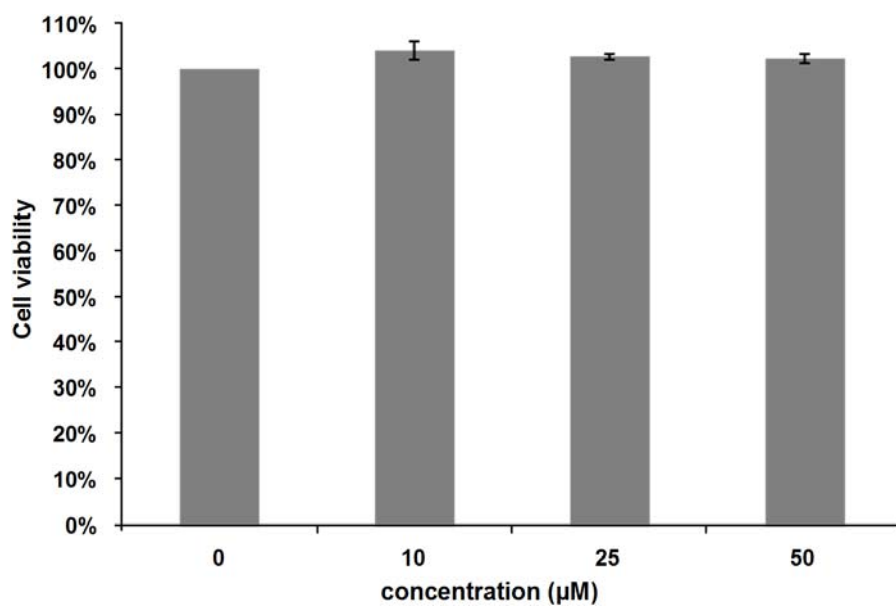


Fig. S4. Cell viability of HeLa cells cultured in DMEM medium supplemented with dH3w (10-50 μM) for 24 hours. Cell viability was determined by measuring the absorbance at 490 nm after 2 hours of incubation with AQUEOUS One Solution Reagent (Promega, Madison, WI).