

Supplementary Fig.S1. The MS/MS spectra of the representative ubiquitinated peptides from ubiquitin carboxyl-terminal hydrolase (USP5). The spectra are shown for ubiquitination sites of K357, K423, K360 and K793, respectively, and their peptide sequences are shown in the respective spectrum.

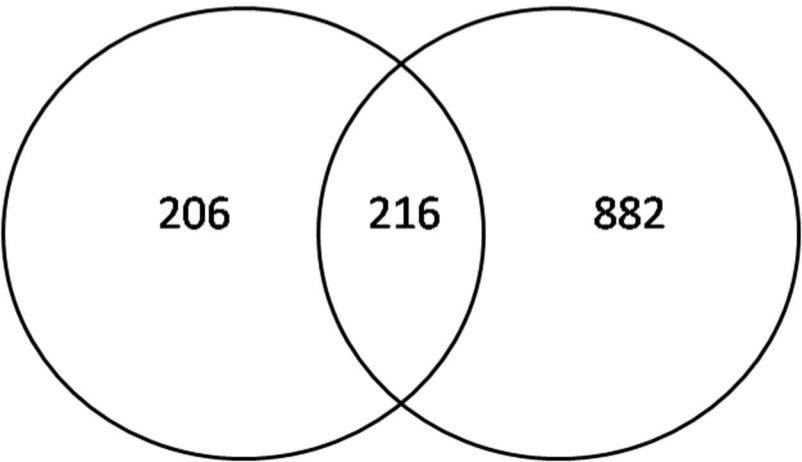
Buffalo testis

MUbiSiDa

206

216

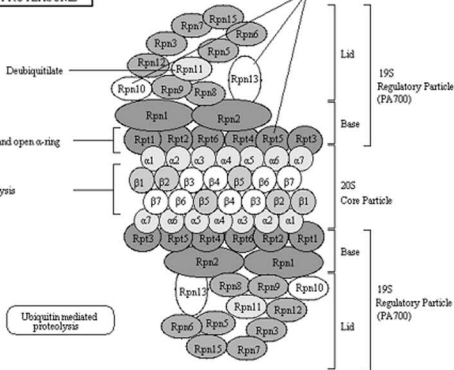
882



Supplementary Fig.S2. The Venn diagram for ubiquitination sites of buffalo testis compared to the mUbiSiDa database.

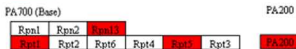
PROTEASOME

Capture polyubiquitinated proteins



PA700-20S-PA700
(26S proteasome)

Regulatory Particles



Bacterial regulatory subunit
(AAA ATPase forming ring-like complex)

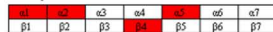


Archaeal regulatory subunit
(oligomeric complex)

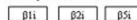


Core Particles (20S proteasome)

Standard proteasome subunits



Immunoproteasome subunits



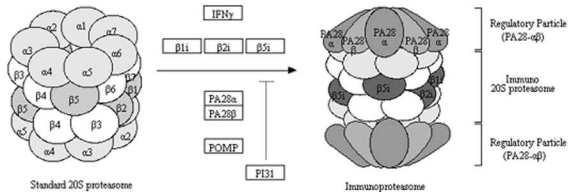
Thymoproteasome subunits



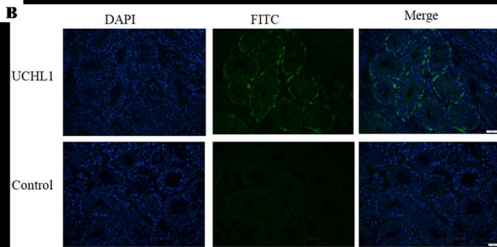
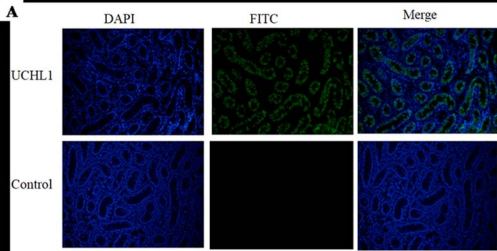
Prokaryotic 20S subunits



Formation of immunoproteasomes



Supplementary Fig.S3. KEGG pathway enrichment analysis of the ubiquitinated proteins in proteasome. The ubiquitinated proteins are highlighted in red.



Supplementary Fig.S4. Immunohistochemical analyses of UCHL1 in pre-puberal (A) and adult (B) buffalo testes. UCHL1 which is mainly localized in the cytoplasm and membrane of spermatogonia in pre-puberal and adult buffalo testes, while the expression quantity decreased with age. The negative controls were incubated in blocking solution without the primary antibody. Scale bars=100 μ m.