Supplemental figure legends

Supplementary Figure 1. Supplementary paired BLCA tissue western blot. The protein expression of OTUB1 in BLCA tissue (T) is higher compared with normal bladder tissue (N).

Supplementary Figure 2. OTUB1 expression is positively related to β -catenin expression. A. The expression of OTUB1 and β -catenin in BLCA tissue and normal bladder tissue is based on the Human Protein Atlas. B. The expression of OTUB1 and β -catenin in BLCA tissue and paired bladder tissue from our hospital. C, D. Quantification of OTUB1 and β -catenin expression in BLCA and paired bladder tissues. E. Correlation study of OTUB1 and β -catenin in BLCA. Statistical analyses were performed with the χ 2 test. R: The Pearson correlation coefficient.

Supplementary Figure 3. OTUB1 is associated with the Wnt-β-catenin signaling pathway. A. Relative expression of OTUB1 following shOTUB1 lentivirus transfection by western blot and qRT-PCR. B. The relationship between OTUB1 and β-catenin was analyzed by the gene MANIA online database. C. The correlation between OTUB1 and β-catenin is based on the GEPIA database. D, E. Gene Ontology and KEGG annotations of differential genes involved in biological processes, molecular function and cellular compartments. F. GSEA of RNA-seq data revealed that OTUB1 target genes were involved in EMT signaling pathway.

Supplementary Figure 4. The relationship and regulation between OTUB1 and other isoforms. A. The downstream molecular expression about OTUB1, C91S, and D88A by western blot. B. Relative expression of

OTUB1 following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. C. Relative expression of βcatenin following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. D. Relative expression of CDK4 following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. E. Relative expression of cyclin D1 following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. F. Relative expression of RIPK3 following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. G. Relative expression of MLKL following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. G. Relative expression of C91S following OTUB1, C91S, and D88A plasmid transfection by qRT-PCR. H. Relative expression of C91S following shOTUB1 lentivirus transfection by western blot and qRT-PCR. I. VRelative expression of D88A following shOTUB1 lentivirus transfection by western blot and qRT-PCR. **Supplementary Figure 1**







A The Human Protein Atlas							
β-catenin		OTUB1					
Normal bladder tissue	Bladder cancer tissue	Normal bladder tissue	Bladder cancer tissue				

OTUB1	High	Low	Total
Normal Bladder	11	31	42
Bladder Cancer	88	17	105
	High	Low	Total
Normal Diaddau		38	12
Normai Bladder	4	50	42
Bladder Cancer	82	23	105

В

Clinical samples β-catenin Normal bladder tissue Bladder cancer tissue Normal bladder tissue



OTUB1

Bladder cancer tissue

С

D

	β-catenin High	β-catenin Low	Total
OTUB1 High	76	12	88
OTUB1 Low	6	11	17
Total	82	23	105
D < 0.001 D	0.455		

P < 0.001; R=0.455









D

