

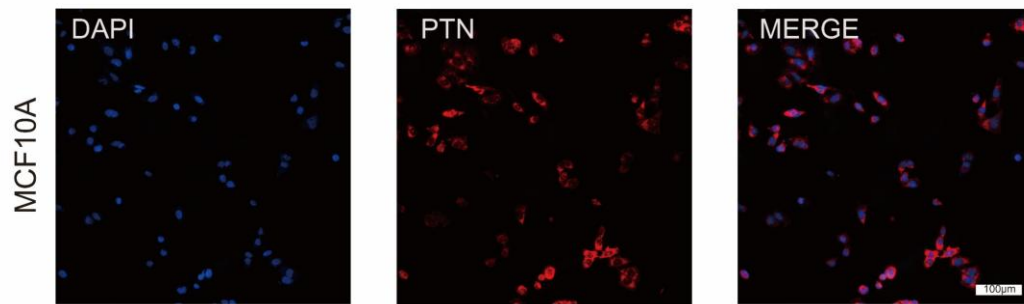


Fig. S1 PTN was abundantly expressed in normal mammary cell line MCF10A. Staining was performed using PTN antibody, and PTN was stained tan. DAPI (blue) represents the nucleus staining. Cy3-immunofluorescence (red) shows PTN protein staining. The scale bar is 100µm.

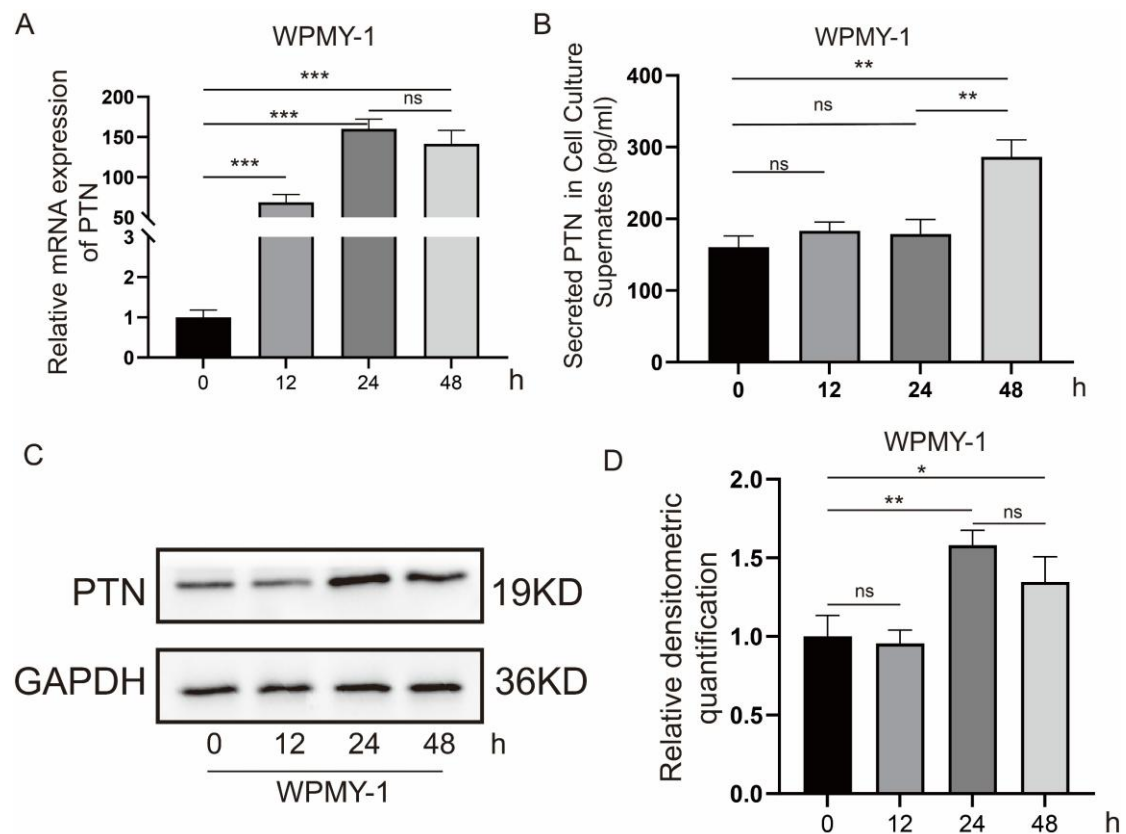


Fig. S2 Temporal kinetic differences and secretion effects of estradiol treatment in WPMY-1.

A The relative mRNA level of PTN at different time points after 10^{-6} M estradiol treatment in WPMY-1. **B** The secreted PTN at different time points after 10^{-6} M estradiol treatment in WPMY-1 Cell Culture Supernates. **C** Immunoblot assay for PTN in WPMY-1 cells with 10^{-6} M estradiol treatment at different time points (i). **D** Relative densitometric quantification for PTN (ii). GAPDH is employed as loading control. ns: $p > 0.05$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

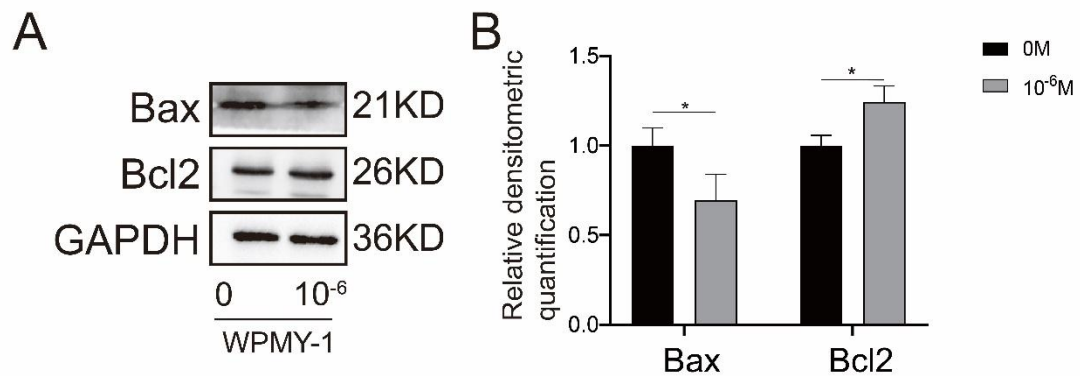


Fig. S3 Estradiol altered the expression level of apoptosis related proteins. **A** Immunoblot assay for Bcl2 and Bax in WPMY-1 cells with estradiol treatment. **B** Relative densitometric quantification for Bcl2 and Bax. GAPDH is employed as loading control. * $p < 0.05$.

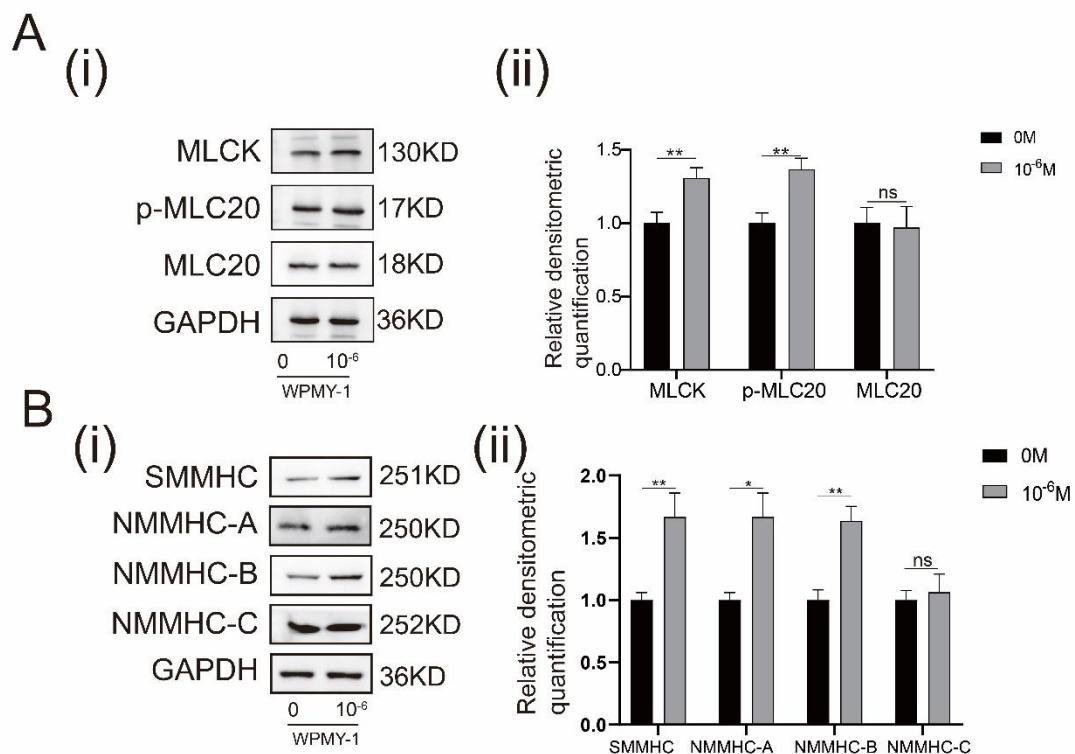


Fig. S4 Estradiol promoted MLC20 phosphorylation, amplified MLCK expression, as well as myosin makers. **A** Immunoblot assay (i) and relative densitometric quantification (ii) for MLCK, MLC20, and p-MLC20 in WPMY-1 cells with estradiol treatment. **B** Immunoblot assay (i) and relative densitometric quantification (ii) of myosin makers in WPMY-1 cells with estradiol treatment. GAPDH is employed as loading control. ns: $p > 0.05$, * $p < 0.05$, ** $p < 0.01$.

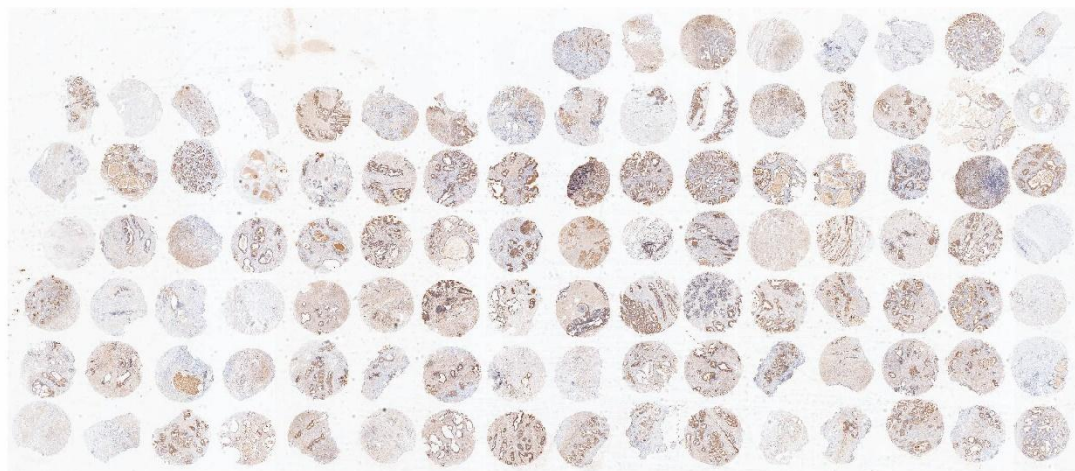


Fig. S5 Immunohistochemical staining of tissue microarray. Staining was performed using PTN antibody, and PTN was stained tan. The scale bar is 4mm.

Table S1 List of primary antibodies

Antigens	Supplier	Species antibodies raised in	Dilution used
GAPDH	Abclonal AC027	Rabbit, polyclonal	1:10000 (WB)
PTN	Proteintech 27117-1-AP	Rabbit, polyclonal	1:1000 (WB) 1:100 (IF) 1:100 (IHC)
Bcl2	Abclonal A11025	Rabbit, polyclonal	1:1000 (WB)
Bax	Abclonal A12009	Rabbit, polyclonal	1:1000 (WB)
MLC20	Cell Signaling, #3672	Rabbit, polyclonal	1:1000 (WB)
p-MLC20	Cell Signaling, #3671	Rabbit, polyclonal	1:1000 (WB)
MLCK	Abcam ab76092	Rabbit, monoclonal	1:1000 (WB)
NMMHC-A	Abclonal, A16923	Rabbit, polyclonal	1:1000 (WB)
NMMHC-B	Abclonal, A12029	Rabbit, polyclonal	1:1000 (WB)
SMMHC	Abclonal, A22339	Rabbit, monoclonal	1:1000 (WB)
Collagen-1	Abclonal A5786	Rabbit, polyclonal	1:1000 (WB)
α -SMA	Abclonal A17910	Rabbit, monoclonal	1:1000 (WB)
ER α	Proteintech 20698-1-AP	Rabbit, polyclonal	1:1000 (WB) 1:200 (IF)
PTPRZ1	Proteintech 55125-1-AP	Rabbit, polyclonal	1:1000 (WB)
AKT	Abclonal A17909	Rabbit, monoclonal	1:1000 (WB)
p-AKT	Abclonal AP0637	Rabbit, monoclonal	1:1000 (WB)
RhoA	Abcam Ab187027	Rabbit, monoclonal	1:5000 (WB)
ROCK1	Abcam Ab134181	Rabbit, monoclonal	1:500 (WB)
ROCK2	Abcam Ab125025	Rabbit, monoclonal	1:10000 (WB)
Ki-67	Servicebio GB111141	Rabbit, polyclonal	1:200 (IF)

Table S2 List of secondary antibodies

Secondary Detection System Used	Host	Dilution used	Supplier
Anti-Mouse-IgG (H + L)-HRP	Goat	1:5000 (WB)	Sungene Biotech, Tianjin, China, Cat. #LK2003
Anti-Rabbit-IgG (H + L)-HRP	Goat	1:5000 (WB)	Sungene Biotech, Tianjin, China, Cat. #LK2001
CoraLite488-conjugated Goat Anti-Rabbit IgG(H+L)	Goat	1:50 (IF)	Proteintech, Wuhan, China, Cat No. SA00013-2

Cy3–conjugated Affinipure Goat Anti-Rabbit IgG(H+L)	Goat	1:50 (IF)	Proteintech, Wuhan, China, Cat No. SA00009-2
Hoechst 33342 (1 mg/ml) nucleic acid staining (DAPI)	-	1:750(IF)	Molecular Probes/Invitrogen, Carlsbad, CA, USA, cat. no. A11007

Table S3 Primer sequences

Target genes		5' to 3'
PTN Primer 1	Forward	GAGCAAGTGTAATCACTGTTCCTA
	Reverse	AGGATAAAGATCCCCTCTTGATG
PTN Primer 2	Forward	GAGCAAGTGTAATCACTGTTCCTA
	Reverse	AGAGAACTTGTCTCAAGTCGACAG
PTN	Forward	GGAGCTGAGTGCAAGCAAAC
	Reverse	CTCGCTTCAGACTTCCAGTTC
GAPDH	Forward	ATCCCATCACCATCTTCCAGGAG
	Reverse	CCTGCTTCACCACCTTCTTGATG

Table S4 List of siRNA sequences

Symbol	Sense sequences (5'→3')	Antisense sequences (5'→3')
si-PTN-1(si1)	CUCAAGCAGAAUCUAAGAATT	UUCUUAGAUUCUGCUUGAG TT
si-PTN-2(si2)	GGGCUUAUAAUAAAGGACUTT	AGUCCUUUAUUUAAGCCC TT
si-PTN-3 (si3)	GCAUGUCCUAGUCAAUGUTT	ACAUUGAACUAGGACAUGC TT
si-RhoA	CCAGUUCCCAGAGGUGUAUTT	AUACACCUCUGGGAACUGG TT
Negative Control siRNA (si- con)	UUCUCCGAACGUGUCACGUTT	ACGUGACACGUUCGGAGAA TT

Table S5 PTN cDNA microarray data in GSE119195

NORMAL	BPH
0.93	1.14
1.09	1.28
0.98	1.32
	1.32
	1.18

Table S6 The descriptive statistics of the clinical information of the BPH patients

	Mean	SD
PTN positive area	0.374057	0.149853
Age	69.63963	9.608296
BMI	22.55144	3.420402
Prostate volume	61.22179	35.90374
fPSA	1.651302	1.423759
tPSA	7.185214	5.922487
fPSA/tPSA	0.257523	0.119583
Nocturia	2.825126	1.803947
IPSS	21.60	7.03
Qmax	9.805511	5.902296
Residual urine volume	171.8404	223.498