

Supplementary figures & tables:

Figure S1.

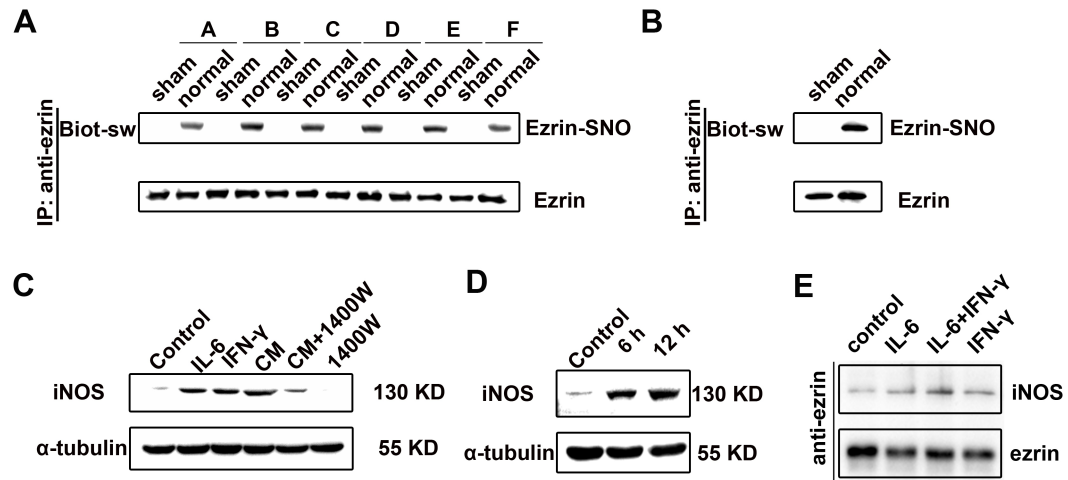


Figure S2.

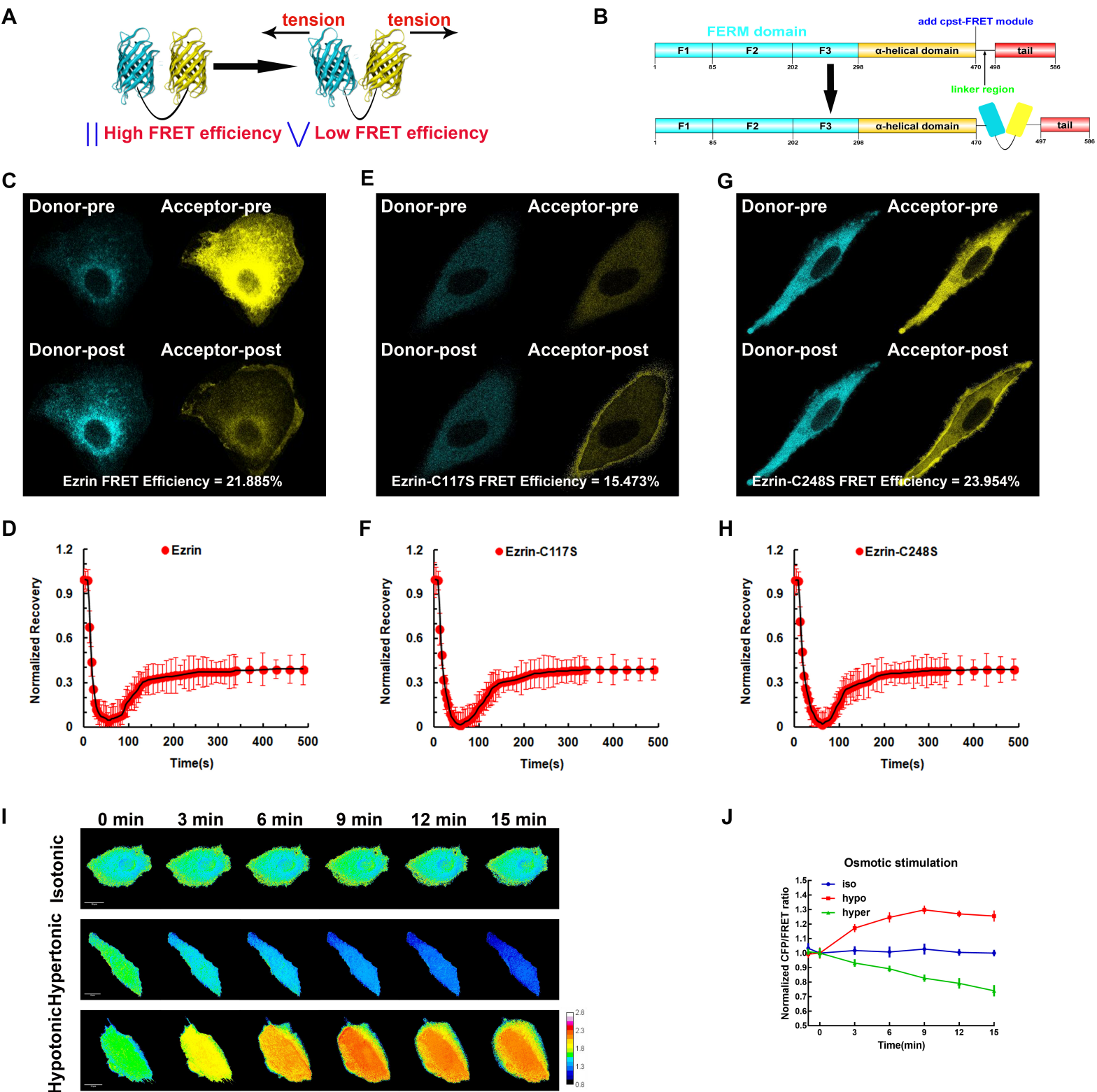


Figure S3.

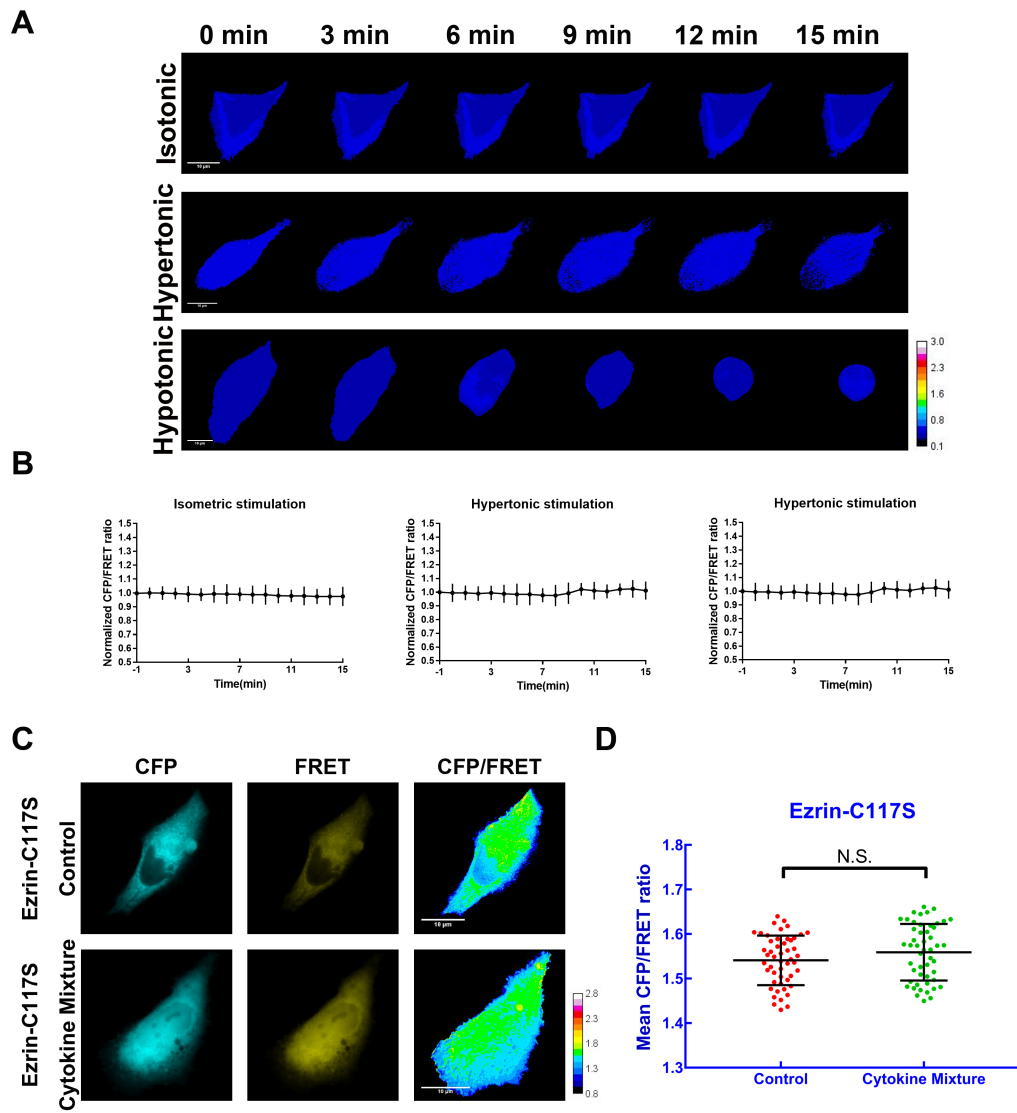
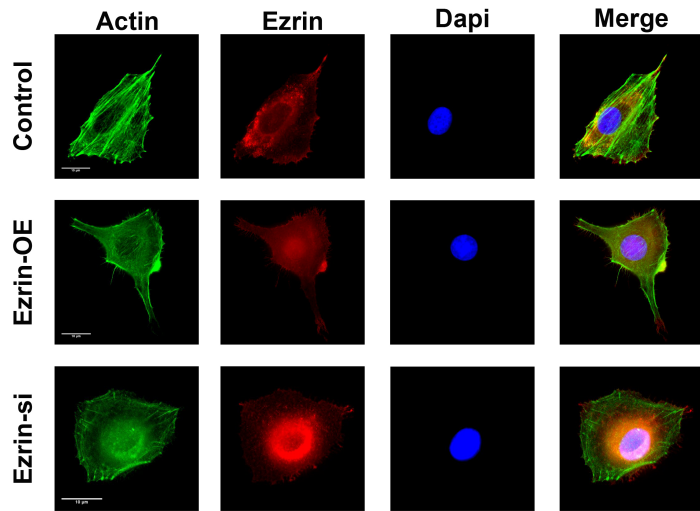
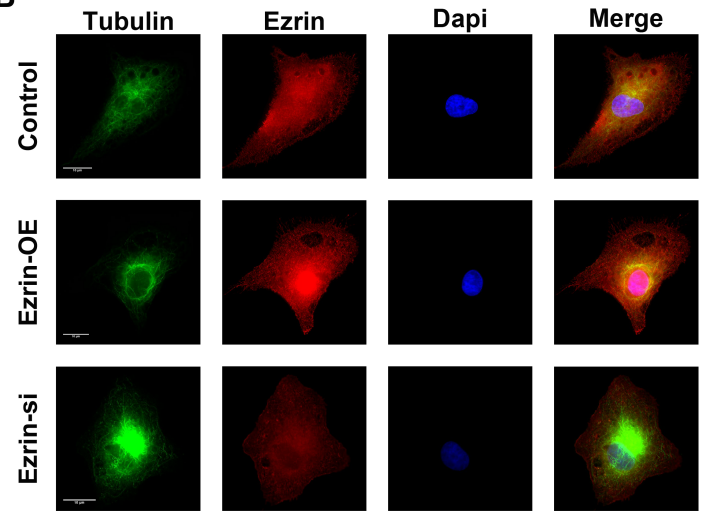


Figure S4.

A



B



**Table S1: Pathological characteristics of lung cancer patients.**

<b>Characteristics</b>	<b>cases</b>
Total number	20
<i>Gender</i>	
Male	11
Femal	9
<i>Age</i>	
> 60	16
≤ 60	4
<i>Tumor size</i>	
≥ 5 cm	16
< 5 cm	4
<i>Tumor stage</i>	
I-II	5
III	15
<i>Lymph node status</i>	
N <sub>0</sub>	3
N <sub>1-3</sub>	17
<i>Distant metastasis</i>	
M <sub>0</sub>	2
M <sub>1</sub>	18
<i>Histology</i>	
Adenocarcinoma	15
Squamous carcinoma	5

The description of pathological characteristics was based on the international system for staging lung cancer.

**Table S2: Introduction of motor proteins.**

Motor Proteins	Inhibitor	Mechnaism	Effect
dynein	ciliobrevin D	Compete with ATP at its binding site in the dynein motor, thus increase the time for dynein attachment to the microtubule in the post-powerstroke conformation[1].	Inhibit dynein to glide on microtubule and vesicular transportation [2].
kynessin	ispinesib	Prevent the release of ADP without preventing the release of the kynessin-ADP complex from the microtubule [3] .	Alter the ability of kynessin to bind to microtubules and inhibits its movement [3].
myosin	Blebbistatin	Bind preferentially to the ATPase intermediate with ADP and phosphate bound at the active site, and slow down phosphate release. Block the myosin heads in a products complex with low actin affinity [4, 5].	Inhibit both myosin II contractility and actin-network treadmilling resulting in the decrease of retrograde flow [6].

**References:**

- 1 Kikkawa M: Big steps toward understanding dynein. *J Cell Biol.* 2013; 202:15-23.
- 2 Firestone AJ, Weinger JS, Maldonado M, Barlan K, Langston LD, O'Donnell M, Gelfand VI, Kapoor TM, Chen JK: Small-molecule inhibitors of the AAA+ ATPase motor cytoplasmic dynein. *Nature.* 2012; 484:125-129.
- 3 Lad L, Luo L, Carson JD, Wood KW, Hartman JJ, Copeland RA, Sakowicz R: Mechanism of inhibition of human KSP by ispinesib. *Biochemistry.* 2008; 47:3576-3585.
- 4 Kovacs M, Toth J, Hetenyi C, Malnasi-Csizmadia A, Sellers JR: Mechanism of blebbistatin inhibition of myosin II. *J Biol Chem.* 2004; 279:35557-35563.
- 5 Ramamurthy B, Yengo CM, Straight AF, Mitchison TJ, Sweeney HL: Kinetic mechanism of blebbistatin inhibition of nonmuscle myosin IIb. *Biochemistry.* 2004; 43:14832-14839.
- 6 Medeiros NA, Burnette DT, Forscher P: Myosin II functions in actin-bundle turnover in neuronal growth cones. *Nat Cell Biol.* 2006; 8:215-226.