

## Supporting Information

### **Arsenic compromises both p97 and proteasome functions**

Joseph Tillotson<sup>†</sup>, Christopher J. Zerio<sup>†</sup>, Bryan Harder<sup>†</sup>, Andrew J. Ambrose<sup>†</sup>, Kevin S. Jung<sup>†</sup>,  
MinJin Kang<sup>†</sup>, Donna D. Zhang<sup>\*†</sup>, Eli Chapman<sup>\*†</sup>

<sup>†</sup>Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona,  
1703 East Mabel St., PO Box 210207, Tucson, AZ, USA 85721

\*Corresponding authors:

Dr. Donna D. Zhang, University of Arizona, Department of Pharmacology and Toxicology,  
College of Pharmacy, 1703 East Mabel St., PO Box 210119, Tucson, AZ, USA 85721-0119  
Tel.: (520) 626-9918, Email: [dzhang@pharmacy.arizona.edu](mailto:dzhang@pharmacy.arizona.edu)

Dr. Eli Chapman, University of Arizona, Department of Pharmacology and Toxicology, College  
of Pharmacy, 1703 East Mabel St., PO Box 210119, Tucson, AZ, USA 85721-0207  
Tel.: (520) 626-2740, Email: [chapman@pharmacy.arizona.edu](mailto:chapman@pharmacy.arizona.edu)

## Table of Contents

Table S1. The presence of arsenate increases the rate of ATP hydrolysis of various forms of p97 in a dose dependent manner.....	S3
--	----

**Table S1. The presence of arsenate increases the rate of ATP hydrolysis of various forms of p97 in a dose dependent manner**

	0 $\mu$ M AsO <sub>4</sub>	50 $\mu$ M AsO <sub>4</sub>	250 $\mu$ M AsO <sub>4</sub>
WT	0.050 $\pm$ 0.001	0.067 $\pm$ 0.001	0.111 $\pm$ 0.001
Cys0	0.0089 $\pm$ 0.0003	0.0123 $\pm$ 0.0003	0.024 $\pm$ 0.001
ND1L	0.0381 $\pm$ 0.0007	0.057 $\pm$ 0.003	0.088 $\pm$ 0.070
K251A	0.0086 $\pm$ 0.0004	0.0120 $\pm$ 0.0008	0.019 $\pm$ 0.001
E305Q	0.067 $\pm$ 0.005	0.077 $\pm$ 0.010	0.139 $\pm$ 0.010
K524A	0.0038 $\pm$ 0.0002	0.0049 $\pm$ 0.0002	0.0078 $\pm$ 0.0005
E578Q	0.022 $\pm$ 0.002	0.021 $\pm$ 0.003	0.031 $\pm$ 0.004
R93C	0.124 $\pm$ 0.008	0.150 $\pm$ 0.008	0.219 $\pm$ 0.011
R95G	0.069 $\pm$ 0.009	0.0940 $\pm$ 0.005	0.122 $\pm$ 0.010
L198W	0.059 $\pm$ 0.073	0.079 $\pm$ 0.001	0.122 $\pm$ 0.009
A232E	0.084 $\pm$ 0.001	0.101 $\pm$ 0.004	0.162 $\pm$ 0.006
N387A	0.048 $\pm$ 0.004	0.060 $\pm$ 0.003	0.096 $\pm$ 0.005
p97-188	0.340 $\pm$ 0.053	0.311 $\pm$ 0.042	0.615 $\pm$ 0.064
p97-208	0.099 $\pm$ 0.009	0.138 $\pm$ 0.019	0.199 $\pm$ 0.022

Wild-type p97 (WT), p97 with no cysteines (Cys0), p97 with no D2 domains but with the linker connecting D1 and D2 (ND1L), D1 mutations: K251A and E305Q, D2 mutations: K524A and E578Q, IBMPFD mutants: R93C, R95G, L198W, A232E, N387A, p97 with no N-domains but with the linker (p97-188), and p97 without the N-domains or linker (p97-208). Data are shown in nanomoles/min.