

**Supplementary Table 1- Km of ATP for HtpG and Hsp90**

<i>E. coli</i> ( $\mu\text{M}$ )	<i>B. burgdorferi</i> ( $\mu\text{M}$ )	Human( $\mu\text{M}$ )	<i>T. denticola</i> ( $\mu\text{M}$ )
220	170	300	510

Supplementary Table 1:  $K_m$ 's of Hsp90 homologues for ATP of Human and *E.coli* have previously been published while *B. burgdorferi* and *T. denticola* have not. These values are essential for calculating the  $K_i$  of each compound for each species. An indirect method to find these values was to find the proportional  $K_m$  to the known human value ( $K_m=300\mu\text{M}$ ),  $EC_{50}$ 's were calculated from their ATP elution (supplementary Fig 1E),  $\frac{K_m(\text{new species})}{K_m(\text{published human})} = \frac{EC_{50}(\text{new species})}{EC_{50}(\text{human})}$ . This method was confirmed using the known *E. coli* value. ( $K_m= 250\pm 82 \mu\text{M}$ ).

**SUPPLEMENTARY TABLE 2- KD OF KNOWN HSP90 INHIBITORS**

	<i>E. coli</i> ( $\mu\text{M}$ )	<i>B. burgdorferi</i> ( $\mu\text{M}$ )	Human( $\mu\text{M}$ )	<i>T. denticola</i> ( $\mu\text{M}$ )
<b>HS-198</b>	5.8 +/- .6	5.6 +/- 3	---	---
<b>HS-131</b>	1.3	1 +/- .1	0.3	---
<b>HS-10</b>	4.1 +/-1	3.5+/- .3	0.2	7+/- 4
<b>RADICICOL</b>	0.1	0.1	0.09	3.0 +/- 2
<b>PU-H71</b>	4.3 +/- 1	0.5	0.3	5 +/- 3
<b>GANETESPIB</b>	0.1	0.1	0.1	0.03
<b>GELDANAMYCIN</b>	2.5 +/- .4	1.2 +/- .2	.9	5 +/- 3