

Supplemental Tables

Disassemblase	+0AA	+10AA	+25AA
Hsc70	0.094s^{-1}	0.053s^{-1}	0.026s^{-1}
Hsc70 Δ C	0.051s^{-1}	0.0078s^{-1}	0.00080s^{-1}
Anti-Flag Fab	$0.10\text{s}^{-1}; 0.02\text{s}^{-1}$	$0.014\text{s}^{-1}; 0.0022\text{s}^{-1}$	$0.00049\text{s}^{-1}; 0.00027\text{s}^{-1}$

Supplemental table 1: Cage disassembly rates calculated for reactions carried out with $2\mu\text{M}$ of the indicated proteins, and with the binding sites for these proteins placed at the WT (+0AA) position or shifted C-terminal by 10 or 25 AA. For the FLAG-Fab reactions 2 values are given depending on whether the final scattering intensity during data fitting was allowed to vary or fixed (2nd value) at 20% of the starting value.

Figure#	Panel	ReactionCondition	n	
	2	A_D	4uM 70 pH 6.8 OAA Cages	45
--	--	--	2uM 70 pH 6.8 OAA Cages	20
--	--	--	1uM 70 pH 6.8 OAA Cages	16
--	--	--	0.5uM 70 pH 6.8 OAA Cages	6
--	--	--	0.4uM 70 pH 6.8 OAA Cages	5
--	--	--	0.2uM 70 pH 6.8 OAA Cages	6
--	--	--	0.1uM 70 pH 6.8 OAA Cages	9
--	B_E	4uM 70 pH 6.8 10AA Cages	12	
--	--	--	2uM 70 pH 6.8 10AA Cages	6
--	--	--	1uM 70 pH 6.8 10AA Cages	5
--	--	--	0.5uM 70 pH 6.8 10AA Cages	8
--	--	--	0.25uM 70 pH 6.8 10AA Cages	3
--	--	--	0.1uM 70 pH 6.8 10AA Cages	5
--	C_F	8uM 70 pH 6.8 25AA Cages	6	
--	--	--	4uM 70 pH 6.8 25AA Cages	26
--	--	--	2uM 70 pH 6.8 25AA Cages	16
--	--	--	1uM 70 pH 6.8 25AA Cages	17
--	--	--	0.5uM 70 pH 6.8 25AA Cages	7
--	--	--	0.25uM 70 pH 6.8 25AA Cages	5
--	--	--	0.1uM 70 pH 6.8 25AA Cages	3
--	G	2uM 70DelC pH 6.8 OAA Cages	8	
--	--	--	1uM 70DelC pH 6.8 OAA Cages	12
--	--	--	0.5uM 70DelC pH 6.8 OAA Cages	10
--	--	--	0.25uM 70DelC pH 6.8 OAA Cages	9
--	H	2uM 70DelC pH 6.8 10AA Cages	11	
--	--	--	1uM 70DelC pH 6.8 10AA Cages	11
--	--	--	0.5uM 70DelC pH 6.8 10AA Cages	4
--	--	--	0.25uM 70DelC pH 6.8 10AA Cages	5
--	I	2uM 70DelC pH 6.8 25AA Cages	4	
--	--	--	1uM 70DelC pH 6.8 25AA Cages	6
--	--	--	0.5uM 70DelC pH 6.8 25AA Cages	8
--	--	--	0.25uM 70DelC pH 6.8 25AA Cages	8
--	J	2uM Fab pH 6.8 OAA FLAG Cages	8	
--	--	--	1uM Fab pH 6.8 OAA FLAG Cages	6
--	--	--	0.5uM Fab pH 6.8 OAA FLAG Cages	6
--	--	--	0.25uM Fab pH 6.8 OAA FLAG Cages	6
--	K	2uM Fab pH 6.8 10AA FLAG Cages	7	
--	--	--	1uM Fab pH 6.8 10AA FLAG Cages	6
--	--	--	0.5uM Fab pH 6.8 10AA FLAG Cages	6
--	--	--	0.25uM Fab pH 6.8 10AA FLAG Cages	5
--	L	2uM Fab pH 6.8 25AA FLAG Cages	7	
--	--	--	1uM Fab pH 6.8 25AA FLAG Cages	6
--	--	--	0.5uM Fab pH 6.8 25AA FLAG Cages	6
--	--	--	0.25uM Fab pH 6.8 25AA FLAG Cages	5
	3	A	2uM70 pH 6 OAA Cages	8
--	--	--	1uM70 pH 6 OAA Cages	6

--	--	0.5uM70 pH 6 0AA Cages	7
--	--	0.25uM70 pH 6 0AA Cages	7
--	B	2uM70 pH 6 10AA Cages	6
--	--	1uM70 pH 6 10AA Cages	10
--	--	0.5uM70 pH 6 10AA Cages	5
--	--	0.25uM70 pH 6 10AA Cages	6
--	C	2uM70 pH 6 25AA Cages	14
--	--	1uM70 pH 6 25AA Cages	19
--	--	0.5uM70 pH 6 25AA Cages	6
--	--	0.25uM70 pH 6 25AA Cages	8
--	D	2uM70 pH 6 0AA FLAG-Tag Cages	4
--	--	1uM70 pH 6 0AA FLAG-Tag Cages	5
--	--	0.5uM70 pH 6 0AA FLAG-Tag Cages	6
--	--	0.25uM70 pH 6 0AA FLAG-Tag Cages	6
--	E	2uM70 pH 6 10AA FLAG-Tag Cages	9
--	--	1uM70 pH 6 10AA FLAG-Tag Cages	8
--	--	0.5uM70 pH 6 10AA FLAG-Tag Cages	4
--	--	0.25uM70 pH 6 10AA FLAG-Tag Cages	4
--	F	2uM70 pH 6 25AA FLAG-Tag Cages	12
--	--	1uM70 pH 6 25AA FLAG-Tag Cages	8
--	--	0.5uM70 pH 6 25AA FLAG-Tag Cages	4
--	--	0.25uM70 pH 6 25AA FLAG-Tag Cages	4
--	G	2uM70DeIC pH 6 0AA Cages	8
--	--	1uM70DeIC pH 6 0AA Cages	4
--	--	0.5uM70DeIC pH 6 0AA Cages	7
--	--	0.25uM70DeIC pH 6 0AA Cages	6
--	H	2uM70DeIC pH 6 25AA Cages	5
--	--	1uM70DeIC pH 6 25AA Cages	4
--	--	0.5uM70DeIC pH 6 25AA Cages	4
--	--	0.25uM70DeIC pH 6 25AA Cages	5
5	C	All Conditions in Panel C	13
--	D	All Conditions in Panel D	12
6	A	20nM70_0nM110 pH 6.8 0AACages	8
--	--	20nM70_100nM110 pH 6.8 0AACages	5
--	--	20nM70_300nM110 pH 6.8 0AACages	7
--	--	20nM70_900nM110 pH6.8 0AACages	5
--	--	20nM70_2700nM110 pH 6.8 0AACages	7
--	--	0nM70_2700nM110 pH 6.8 0AACages	4
--	B	250nM70_0nM110 pH 6.8 0AACages	4
--	--	250nM70_100nM110 pH 6.8 0AACages	5
--	--	250nM70_300nM110 pH 6.8 0AACages	5
--	--	250nM70_900nM110 pH6.8 0AACages	4
--	--	250nM70_2700nM110 pH 6.8 0AACages	6
--	C	5uM70 pH 6 0AA Cages	11
--	--	10uM70 pH 6 0AA Cages	9
--	--	21uM70 pH 6 0AA Cages	8
--	--	42uM70 pH 6 0AA Cages	4

--	D	5uM70DeIC pH 6 OAA Cages	5
--	--	10uM70DeIC pH 6 OAA Cages	10
--	--	21uM70DeIC pH 6 OAA Cages	10
--	--	42uM70DeIC pH 6 OAA Cages	8
--	E	125nMHisTag70_0nM Anti-His Fab pH 6.8 OAA Untagged Cages	14
--	--	125nMHisTag70_125nM Anti-His Fab pH 6.8 OAA Untagged Cages	15
--	--	125nMHisTag70_250nM Anti-His Fab pH 6.8 OAA Untagged Cages	12
--	--	125nMHisTag70_63nM Anti-His Fab pH 6.8 OAA Untagged Cages	6
--	F	0nMHisTag70_125nM Anti-His Fab pH 6.8 OAA Untagged Cages	5
--	--	125nMUntagged70_125nM Anti-His Fab pH 6.8 OAA UntaggedCages	4
--	--	125nMUntaggedTag70_0nM Anti-His Fab pH 6.8 OAA Nterm-His-Tag Cages	6

Supplemental Table 3: AFM Measurement of Cage Size and Compressibility with Hsc70ΔC or Hsc70					
		Clathrin Cages only	Clathrin-Auxilin Cage	Clathrin-Hsc70ΔC Cages	Clathrin-Hsc70 Cages
Tip Force=200 pN					
	# Particles	244	167	200	198
Full Height	Mean (nm)	69.9	70.1	73.5	68.3
	s.d.	15.0	14.8	17.1	16.2
	s.d.of mean	1.0	1.1	1.2	1.2
	median	68.2	69.6	70.8	66.7
Mean Compression	Mean (nm)	8.5	8.9	9.9	11.9
	s.d.	2.4	2.4	2.7	4.5
	s.d. of mean	0.15	0.18	0.19	0.32
	median	8.3	8.5	9.6	10.6
Maximum Compression	Mean (nm)	15.6	16.1	19.9	24
	s.d.	3.6	2.9	4.4	9.5
	s.d. of mean	0.23	0.23	0.31	0.68
	median	15.2	15.9	19.7	22.1
Tip Force=100 pN					
	# Particles	ND	358	ND	522
Full Height	Mean (nm)	ND	80.3	ND	78.8
	s.d.	ND	16.3	ND	20.0
	s.d.of mean	ND	0.86	ND	0.83
	median	ND	77.1	ND	72.9
Mean Compression	Mean (nm)	ND	7.6	ND	6.3
	s.d.	ND	3.0	ND	3.7
	s.d. of mean	ND	0.16	ND	0.16
	median	ND	6.9	ND	5.5
	# Particles	ND	358	ND	522
Maximum Compression	Mean (nm)	ND	19.3	ND	30.4
	s.d.	ND	10.4	ND	26.0
	s.d. of mean	ND	0.55	ND	1.1
	median	ND	17.9	ND	19.9

Mean and median values for size and mean and maximum compression of clathrin cages, cages+auxilin, cages+auxilin+Hsc70ΔC and cages+auxilin+Hsc70.