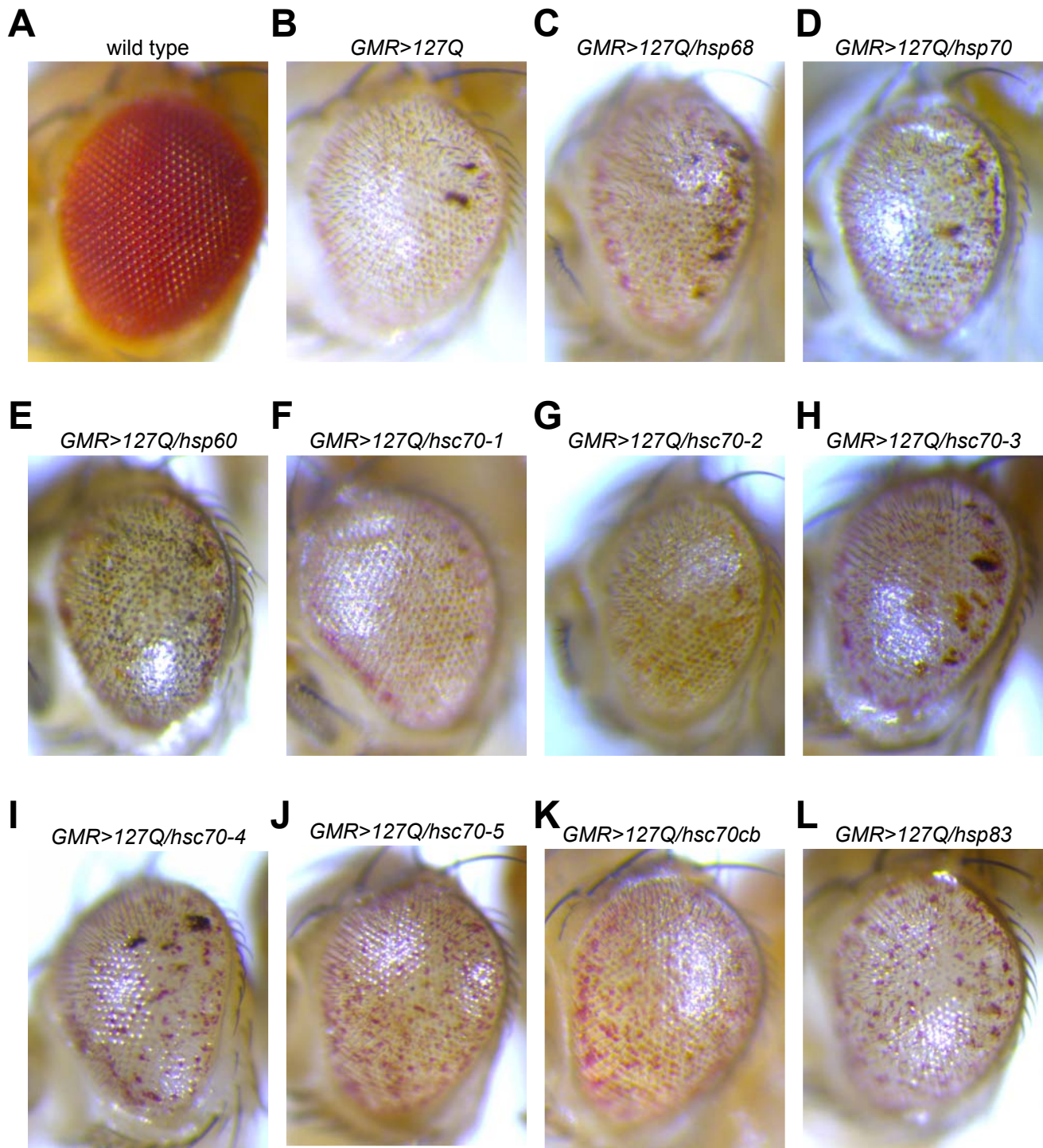
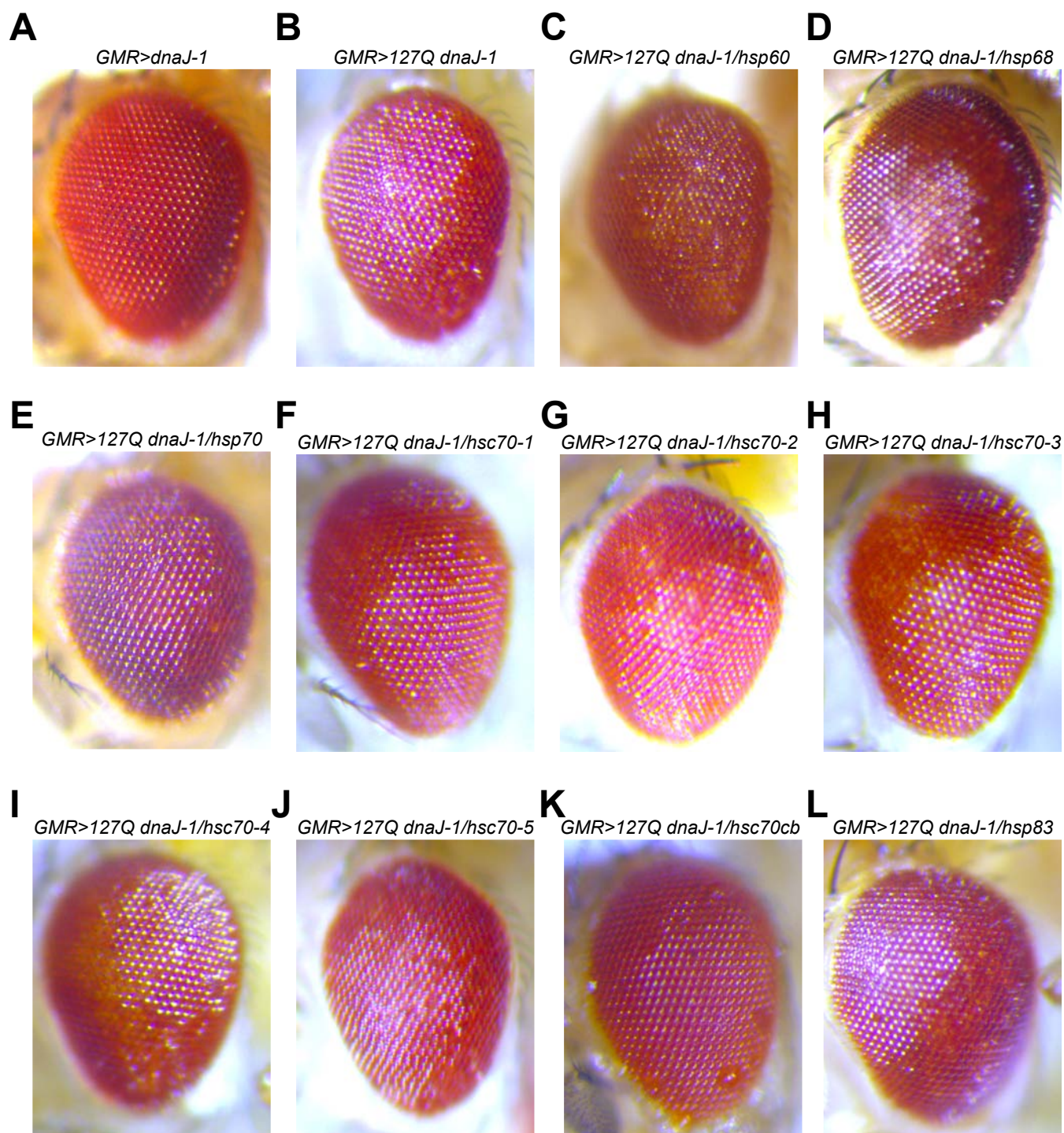


# Supplemental Figure S1



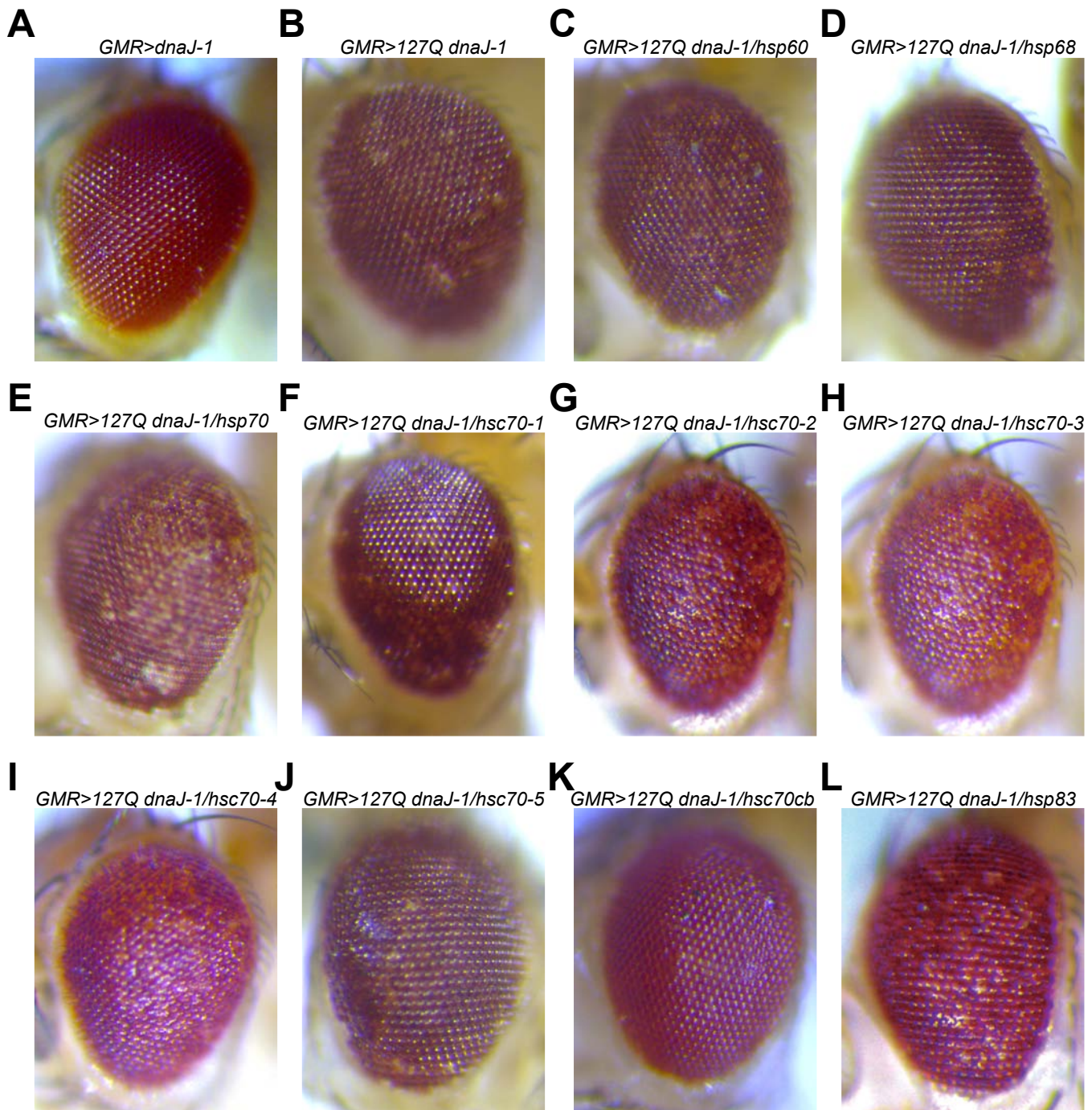
**Supplemental Fig S1.** Screen heat-shock proteins for suppressors of polyQ toxicity. Individual expression of HSP68, HSP70, HSP60, HSC70-1, HSC70-2, HSC70-3, HSC70-4, HSC70-5, HSC70cb, HSP83 in the *GMR>127Q* background had little effect on external degeneration of *GMR>127Q*.

## Supplemental Figure 2



**Supplemental Fig. S2.** Screen heat-shock proteins for co-suppressors with DNAJ-1 on polyQ toxicity. Comparing to *GMR>127Q dnaJ-1*, expression of HSP68, HSP70, HSP60, HSC70-1, HSC70-2, HSC70-3, HSC70-4, HSC70-5, HSP83 with DNAJ-1 in the *GMR>127Q* background had little effect on external degeneration, while expression of HSC70cb (K) enhance the suppression effect of DNAJ-1 on 127Q-induced external degeneration. Flies under 1-day old were used.

# Supplemental Figure 3

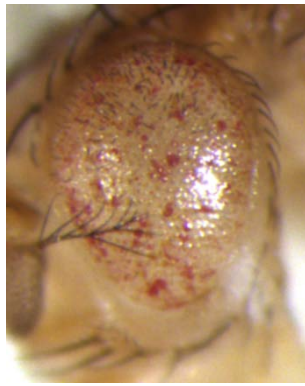


**Supplemental Fig. S3.** Examination of eye morphology of aged animals with co-expression of DNAJ-1 on polyQ-induced external degeneration. Co-expression of HSC70cb (K) with DNAJ-1 further suppressed external degeneration of *GMR>127Q* compared with *GMR>127Q dnaJ-1*, while co-expression of other heat-shock proteins with DNAJ-1 did not. The flies were reared under a 12 h light/12 h dark cycle for 10 days.

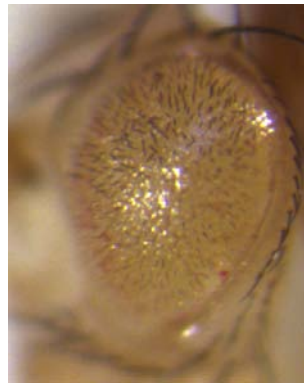
## Supplemental Figure S4



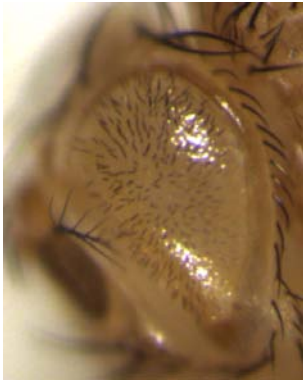
*GMR>127Q*



*GMR>127Q droJ2*



*GMR>127Q CG5001*



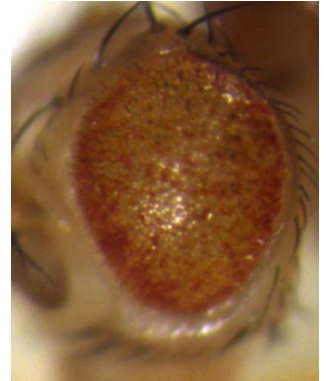
*GMR>127Q CG2887*



*GMR>127Q mrj*



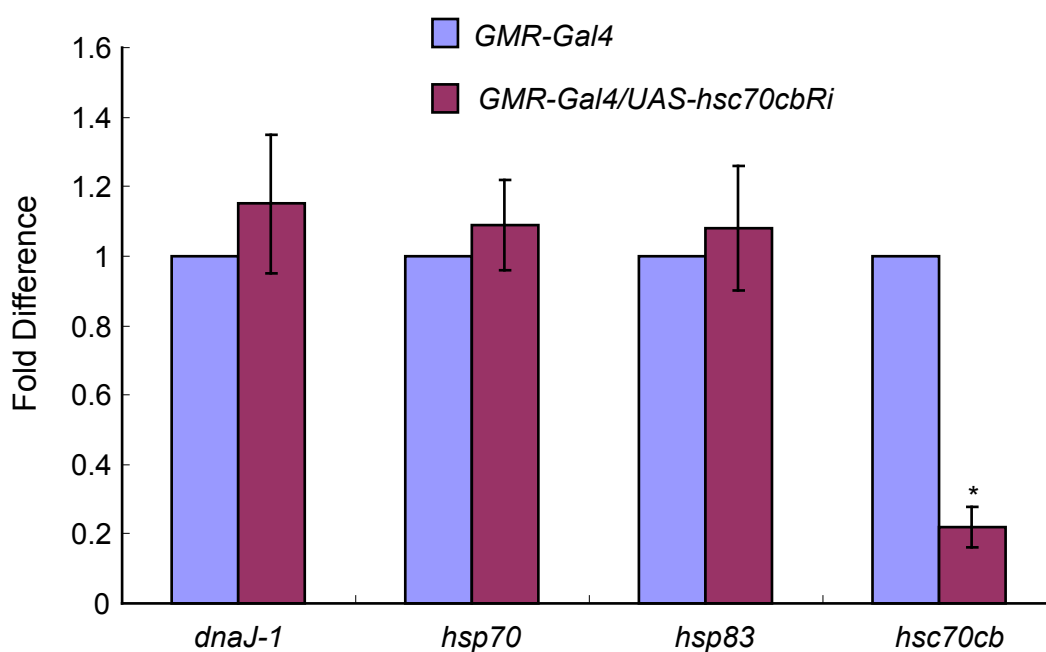
*GMR>127Q mrj/hsc70-cb*



*GMR>127Q mrj/hsc70-cbRi*

Supplemental Figure S4: MRJ suppressed polyQ toxicity independent of HSC70cb. Photographs of the external eye of *GMR>127Q(GMR-Gal4 UAS-127Q/+)*, *GMR>127Q droJ2(GMR-Gal4 UAS-127Q/UAS-droJ2)*, *GMR>127Q CG5001(GMR-Gal4 UAS-127Q/UAS-CG5001)*, *GMR>127Q CG2887(GMR-Gal4 UAS-127Q/UAS-CG2887)*, *GMR>127Q mrj(GMR-Gal4 UAS-127Q/UAS-mrj)*, *GMR>127Q mrj/hsc70-cb (GMR-Gal4 UAS-127Q UAS-hsc70cb/UAS-mrj)* and *GMR>127Q mrj/hsc70-cbRi (GMR-Gal4 UAS-127Q UAS-hsc70cbRi/UAS-mrj)*.

## Supplemental Figure S5



Supplemental Figure S5: Specific Downregulation of *hsc70cb* mRNA by expression of *hsc70cb* RNAi in fly retina. Fly retinæ were dissected from young flies of *GMR-gal4* and *GMR-gal4/hsc70cbRi*. Quantitative RT-PCR analysis of the expression of *dnaJ-1*, *hsp70*, *hsc83* and *hsc70cb* was normalized to *gapdh*. Asterisks indicate statistically significant differences (Student's unpaired t test;  $P < 0.01$ ).

HSP105	MSVVGIDVGSQSCYIAVARAGGIETIANEFSDRCTPSVIFSGSKNRTIGVAAKNQQTTHANNVSNFKRFHGRAFNDFEIQKEKENLSYD	90
APG-1	MSVVGIDLGFLNCYIAVARSGGIETIANEYSDRCTPACISLGSRTAIGNAAKSOIVTVNVRNTIHGFKKLHGRSFDPIVQTERIRLPYE	90
HSC70cb	MSVIGIDFGNESCYIAARSGETIETLANDYSLRATPSFVAFDGKKRIIGVAAKNQOVNMMKNTVGGFKRLGRKFNDPEVQHELTSIPAR	90
HSP105	LVPLKNGGVGIKVMYMGEEHLFSVEQITAMLLTKLKETIENSLLKPPVTDVCVISVPSFFTDAERRSVLDAAQIVGLNCLRLMNDMTAVALN	180
APG-1	LQKMPNGSAGVKVRYLEEFERFFAIEQVTGMLLAKLKETSENALKKPVADCVISVPSFFTDAERRSVMAAAQVAGLNCLRLMNETTAVALA	180
HSC70cb	VEARGDGSIGIKVNYLGEIQHFGPEQLTAMLFTKLKETSAAMQOTQVNDCVIACVFFFTNAERKALLDAAQIAGLNVLRLMNETTATALA	180
HSP105	YGIYKQDLPSLDEKPRIVFVDMGHSAFQVSACAFNKGKLVLTAFDPELGGKNFDEKLVDFHCAEFKTKYKLDKSKTRALLRLRYQEC	270
APG-1	YGIYKQDLPLDEKPRNVVFTDMGHSAYQVSVCAFNKGKLVLTAFDPELGGKRFDEALVDYFCDFKTKYKINVKENSRALLRLRYQEC	270
HSC70cb	YGFYKNDL--FEDKPRNVIFVDFGHSSLQASACAFNKGKLVLTAFDPELGGKRFDEALVDYFCDFKTKYKINVKENSRALLRLRYQEC	267
HSP105	EKLKMLSSNSTDLPLNIECFMNDKDVSGKMNRSQFEELCAELLQKIEVPLYSLLQTHIKVEDVSAVEIVGGATRIPAVKERIAKFFGK	360
APG-1	EKLKMLSANASDLPLNIECFMNDLDVSSKMNRQFEELCASLLARVEPPLKAVMEQANLQREDISSIEIVGGATRIPAVKEQITKFFLK	360
HSC70cb	EKLKQMSANSTKPLNIECFIDIDVSSSMORSQFEELCAPVLQORVEQTFKRLIAESKQLQDDIHSVEIVGGSRIKSVKQLIEQVFNK	357
HSP105	DI STTLNADEAVARGCALQCAILSPAFAKVFREFSVTDVAPFPIISLIWNHDS EDTGVHEVSRNHAAPFSKVLTFDRGPFLEAFYSDPQ	450
APG-1	DI STTLNADEAVARGCALQCAILSPAFAKVFREFSITDLVPYSITLRWKTSEFEGSGECEVFCNHPAPFSKVIITFKKPEPFEAFYTNLH	450
HSC70cb	PASTTLNQDEAVSRGALQCAI MSPAVRVREFGVTDIQNYAVKVLWDSEGSAAFGETIEIPQYHASPFSRLLTINRKGPFNVISIVYG--Q	445
HSP105	GVPYPEAKIGREVVQNSAQKDGKSRVVKVVRVNTHGIFITISTASMVEKVPTEENEMSSHADMECLNQRBPENEDTDKNVQQDNSEAGT	540
APG-1	EVPYPDARIGSEFTIQNVEPQSDGDSKVKVVRVNTHGIFSVASASVIEKQNLGD--HSDAPMETETSFKNENKDNMDKMQVDQEEG--	536
HSC70cb	QVPYPDQTIQVTKVQKVEETERGEGQDVKLVKRVINNGIVLISSATLVEKKEAEEA--AAAAEQAASEEKFGDQINNTGEPADGQEEG--	531
HSP105	QPQVQIDAQQTSSQSPSEPEITSEENKIPDADKANEEKVDQPPPEAKPKIKVNVNVELPIEANLVWQLGKDLLNMYTETEGKMIMQDKLEKE	630
APG-1	--HQKCHAHT----EEEEIDHTGAKTKSAVSDKQDRINQILKKGK----VKSIDLPIQSSLCRQLGQDLLNSYIENEGKMIMQDKLEKE	616
HSC70cb	-----ADKKKAS-----KATELPLECTHGFSPVDLSN-YTQQESKMIENDQKETE	577
HSP105	RNDAKNAVEEYVYFRDKLGG--PYEKFICEQDHQNFIRLLTETEDWLYEEGEDQAKQAVVDKLEELMKIGTPVKVRECEAEERPKMFEEL	719
APG-1	RNDAKNAVEEYVYDFRDLGT--VYEFITPEDLSKISAVLEDTENWLYEDGEDQPKQVYVDKLEELMKYQPIQMKYMEHEERPKALNDL	705
HSC70cb	RIDAKNALEEYVYDMRNLQGGPFERYVVEAEREKIVSCLNDLENWLYEDGEDCEEDITYSRLQALHQKTDPIKIRASLYEQGPAAFDEL	667
HSP105	GQRLOHYAKTAAAFRNKDEKYNHIDSEMKKVEKSVNVEWMMNVMNAQAKKSLDQDPVVRAQEIKTIKIKELNNTCEPVVITQPKPKIES	809
APG-1	GKHIQLVMKVI EAVRNKDERYDHLDPTEMEKVEKCTSDAMSWLNSKMNAQNKLSLTQDPVVKVSEIVAKSKELDNECNPIIYKPKPKAEV	795
HSC70cb	KNSIATARLAAEFKRGVVKYDHLTETEFINISEADKACSWLDANLPKFTQSPRTADSPVQISAVRQEVQTLNSCVSSVINRAKPK-PI	756
HSP105	EKLERTPNGPNI DKKEEDLEDKNFGAEPHONGECYPNEKNSVNMDDL	858
APG-1	E-----EDKPRANSERNGPMDGQSGTETKSDSTKISSQHTKSSGEMEVD	839
HSC70cb	BAKTATPPKDEANAEQNGGEPAN--SGDKMDVDNNGQSAAGNDPSMEVE	804

**Supplemental Fig. S6.** Alignment of the HSC70cb amino acid sequence with HSP105 and APG-1. Identical residues, which are found in at least two proteins, are enclosed in black boxes. The ATPase domain is indicated by the solid line underneath the corresponding sequence. The running tally of amino acids is indicated to the right, and asterisk indicates the amino acid in HSC70cb mutated to HSC70cb<sup>K68S</sup>.