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The farnesylated nuclear proteins KUGELKERN and LAMIN B promote aging-like phenotypes in *Drosophila* flies

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Summary

The nuclear lamina consists of a meshwork of lamins and lamina-associated proteins, which provide mechanical support, control size and shape of the nucleus, and mediate the attachment of chromatin to the nuclear envelope. Abnormal nuclear shapes are observed in aging cells of humans and nematode worms. The expression of *laminΔ50*, a constitutively active *lamin A* splicing variant in Hutchinson–Gilford progeria syndrome patients, leads to the lobulation of the nuclear envelope accompanied by DNA damage, and loss of heterochromatin. So far, it has been unclear whether these age-related changes are *laminΔ50* specific or whether proteins that affect nuclear shape such as *KUGELKERN* or *LAMIN* B in general play a causative role in senescence. Here we show that in adult *Drosophila* flies, the size of the nuclei increases with age and the nuclei assume an aberrant shape. Moreover, induced expression of the farnesylated lamina proteins Lamin B and Kugelkern cause aberrant nuclear shapes and reduce the lifespan of adult flies. The shorter lifespan correlates with an early decline in age-dependent locomotor behaviour. Expression of *kugelkern* or *lamin B* in mammalian cells induces a nuclear lobulation phenotype in conjunction with DNA damage, and changes in histone modification similar to that found in cells expressing *laminΔ50* or in cells from aged individuals. We conclude that lobulation of the nuclear membrane induced by the insertion of farnesylated lamina-proteins can lead to aging-like phenotypes.

Key words: aging; *Drosophila*; farnesylation; Hutchinson–Gilford Progeria Syndrome (HGPS); lifespan; nuclear lamina.

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Introduction

In aging human cells as well as in old worms, progressive changes in nuclear shape take place which result in highly lobulated, folded nuclear envelopes (Haithcock *et al*., 2005; Scaffidi & Misteli, 2006). Beside these morphological changes, age-related nuclear defects can be observed that include accumulation of DNA damage and reduced levels of heterochromatin accompanied by differences in histone modification pattern in cultured cells from old human individuals (Scaffidi & Misteli, 2006). Similar nuclear defects are known from patients with the premature aging syndrome Hutchinson–Gilford progeria (HGPS), which is caused by a dominant mutation in the lamin A gene (*LMNA*; De Sandre-Giovannoli *et al*., 2003; Eriksson *et al*., 2003; Scaffidi & Misteli, 2005, 2006; Capell *et al*., 2007).

Lamins are structural proteins of the nuclear lamina, which maintain the mechanical stability and shape of the nucleus, and are thought to organize chromatin structure and provide molecular docking sites for heterochromatin (Gruenbaum *et al*., 2003, 2005; Shumaker *et al*., 2006; Capell *et al*., 2007). Lamin A is also present in the nucleoplasm, where it is essential for DNA replication (Goldman *et al*., 2004). Mutations in the human lamin A gene cause at least 11 different human diseases called laminopathies. These mutations map throughout the entire *LMNA* gene (Wiesel *et al*., 2008). In seven of these laminopathies, the N-terminal globular domain, or the rod domain, are affected. If known, these mutations are missense mutations that result in protein misfolding or in a failure of protein assembly leading to partial or complete loss of function. For example, in Emery–Dreifuss muscular dystrophy type 2, or dilated cardiomyopathy, LAMIN A assembly is disrupted which compromises the mechanical integrity of the nucleus. Other mutations are located in the C-terminal globular domain, e.g. in Dunningan-type familial partial lipodystrophy, or in mandibulosacral dysplasia and may affect the interaction of LAMIN A with other proteins. Only in HGPS or in restrictive dermopathy is the C-terminal farnesylation site affected, which results in the presence of permanently farnesylated PRELAMIN A (or LAMINΔ50). Restrictive dermopathy can also be caused by a mutation of ZMPSTE24, the endoprotease which cleaves off the farnesylated C-terminus of prelamin A. Restrictive dermopathy is characterized by severe intrauterine growth retardation and early lethality. Premature aging, however, is only described for HGPS, or atypical Werner syndrome (AWS) patients. Mutations that lead to AWS map to the rod domain of *lamin A*. In both diseases, nuclear morphology is altered and DNA damage is impaired. The molecular mechanism of AWS is still unknown (Capell & Collins, 2006).

The *lamin A* mutation that causes HGPS changes the splicing of the primary transcript: a normally rare splicing variant of

lamin A encoding *laminΔ50* is constitutively produced. In contrast to the normal splicing variant which loses its farnesyl residue and partly relocates from the nuclear lamina to the nucleoplasm, LAMINΔ50 is permanently inserted into the inner nuclear membrane via its farnesyl residue. Even in healthy individuals, the cryptic splicing site is sporadically active and LAMINΔ50 protein is present in aged human cells. Inhibition of the *laminΔ50*-splicing variant can reverse the nuclear defects seen in cells from aged individuals (De Sandre-Giovannoli *et al*., 2003; Eriksson *et al*., 2003; Scaffidi & Misteli, 2005, 2006; Capell *et al*., 2007). Although, the levels of LAMINΔ50 do not increase during the lifetime in normal cells, it is thought that *lamin A* participates in the physiological aging process (Scaffidi & Misteli, 2006).

Aberrant nuclear shapes with nuclear envelope foldings, lobulations and extra membrane growth can be induced by laminΔ50 but also by other permanently farnesylated nuclear proteins like B-type lamins or Kugelkern (*kuk*) (Prüfert *et al*., 2004; Ralle *et al*., 2004; Brandt *et al*., 2006). Kugelkern shares some structural features of lamins, such as the C-terminal farnesylation site and a nuclear localization signal. However, it is insect specific and a homolog in vertebrates is not known. To date, it is unclear whether only *laminΔ50* is able to induce aging-like phenotypes or whether permanently farnesylated nuclear lamina proteins in general like Lamin B or Kugelkern can contribute to the aging process.

It is a matter of discussion how changes in nuclear morphology relate to cellular or organismal aging. It may be that irregular-shaped nuclei are simply a consequence of aging in cells. Alternatively, it may be that an abnormal nuclear architecture is able to promote the aging process itself. For example, in cultured HGPS cells it has been shown that loss of the H3K27me3, a mark for facultative heterochromatin, takes place before the morphological changes of the nucleus becomes visible (Shumaker *et al*., 2006), arguing that nuclear shape changes are a consequence of aging. To distinguish between these alternative models, we induced nuclear shape changes in a *laminΔ50*-independent way and tested their effect on age-related phenotypes on a cellular and organismal level, and on lifespan in *Drosophila* flies. Indeed, farnesylated lamina proteins like lamin B, or Kugelkern cause aberrant nuclear shapes and shorten the lifespan of flies. We provide functional evidence that *kuk* contributes to the regulation of heterochromatin formation in the fly. Moreover, even a truncated lamin B variant that only consists of the nuclear localization signal and the C-terminal farnesylation site as well as the *Drosophila*-specific *kuk* are able to induce age-related cellular defects. These new findings support a model that the nuclear lamina plays a general role for the aging process.

Results

Changes in nuclear architecture are reported for *Caenorhabditis elegans*, where in most non-neuronal cell types, massive nuclear shape changes and a loss of peripheral heterochromatin take place as the animal ages (Haithcock *et al*., 2005). Here, we show that the nuclear architecture in adult *Drosophila* longitudinal muscle cells undergo progressive and stochastic alteration as the fly ages (Fig. 1A–K). Most muscle nuclei in young animals were round with a smooth surface. Over time, the nuclei increased significantly in size and assumed an uneven wrinkled shape (Fig. 1A,B). When we overexpressed *lamin B* or *kuk* in adult muscle cells, we observed a significant increase in nuclear perimeter, wrinkled, lobulated nuclei, and accumulations of Kuk (Fig. 1A), or LAMIN B staining (Fig. 3A) at the nuclear envelope. Accumulations of lamina proteins in aged nuclei are also reported for *C. elegans* (Haithcock *et al*., 2005). Muscle nuclei analysed by transmission electron microscopy (Fig. 1C–K) showed an age-dependent loss of peripheral heterochromatin and a strong increase in dark inclusions, which may contain highly condensed chromatin consistent with the data reported for *C. elegans* (Haithcock *et al*., 2005). Moreover, there was a separation of the inner and outer nuclear membrane (Fig. 1E). In old nuclei, we found a high number of ring-like structures of less than 50 nm in diameter in the nucleoplasm (Fig. 1E), which are too small to present a complete nuclear pore. The ring-like structures were not marked by the nuclear pore-marker AB414, Lamin B, or with Kuk antibodies in immuno-electron microscopy (data not shown). No trilaminar unit-membrane structure was visible in the rings, which argues against vesicles. Although the actin/myosin array of the muscle fibres seemed to be intact in old flies (Fig. 1D,E), the number of degenerated mitochondria increased and we found organelle-free zones (Supplementary Fig. S1). In flies expressing six genomic copies of *kuk* (Fig. 1F–H) or flies conditionally expressing *lamin B* or *kuk* in the muscle tissue, loss of peripheral heterochromatin, separation of inner and outer nuclear membrane, accumulation of ring-like structures and a strong increase of dark material in the nucleoplasm were observed even in 1-week-old flies (Fig. 1F,I,J). In tissues that were not overexpressing *lamin B* or *kuk*, we found no alteration of nuclear size or shape (Supplementary Fig. S2). In conclusion, we describe age-dependent morphological changes of the nucleus in *Drosophila* flies. Moreover, these morphological alterations can be induced ahead of time by overexpression of *lamin B* or *kuk*.

In cultured *Xenopus* A6 cells, it has been shown that the farnesylation of Lamin B or Kuk is required for localization at the nuclear lamina and the induction of nuclear shape changes (Prüfert *et al*., 2004; Brandt *et al*., 2006). To test whether the farnesylation motif is also relevant for *kuk* activity in the fly, we first expressed the *kukCS* mutant allele which lacks its farnesylation site in *kuk* deficient embryos by heat shock and characterized its localization and action towards nuclear morphology. Consistent with the finding in cultured *Xenopus* cells, we found a predominantly nucleoplasmatic localization of KukCS protein, with only a few small dots localized to the nuclear envelope (Fig. 1L). Interestingly, when we expressed the nonfarnesylated KukCS protein in wild-type flies, we found a clear localization to the nuclear envelope. Moreover, in the wild-type background, the mutated protein was able to induce lobulation of

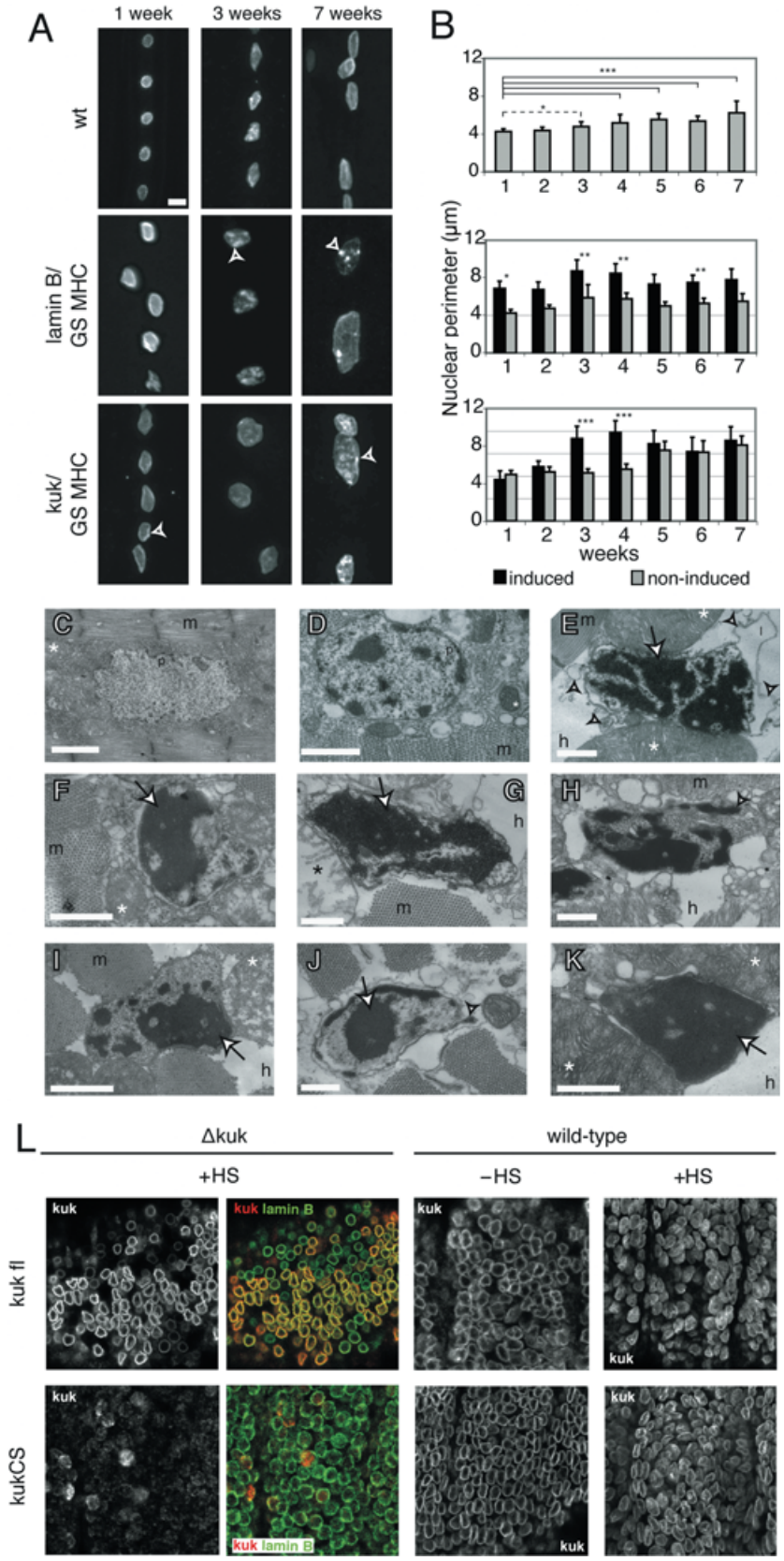

Fig. 1 Morphology of longitudinal muscle nuclei in aging *Drosophila* flies. (A and B) Fluorescence antibody staining of muscle cells. (A) Kuk-stained muscle nuclei of wild-type (wt), RU 486-induced UASlamin B/GS-MHC (lamin B/GS-MHC), or UASkuk/GS-MHC (kuk/GS-MHC) longitudinal muscle nuclei at indicated ages (scale bar, 1 µm). Z-stacks were fused with the MAXintensity tool in ImageJ to show several nuclei. (B) Perimeter of wild-type (upper panel), UASlamin B/GS-MHC (middle panel), or UASkuk/GS MHC (lower panel) flies longitudinal muscle nuclei at indicated ages (grey bars: non-induced control flies, black bars: RU 486-induced flies; wt: *n* between 45 and 95 nuclei per time-point; UASlamin B/GS-MHC: *n* between 41 and 135 nuclei per time-point. UASkuk/GS-MHC: *n* between 37 and 104 nuclei per time-point) Mean values are depicted, ± SEM. For wild-type flies, a one-way analysis of variance (ANOVA), in UASlamin B/GS-MHC or in UASkuk/GS-MHC flies a two-way ANOVA was followed by Bonferroni multiple comparison test, $*p < 0.05$, $**p < 0.01$, $***p < 0.0001$. (C–K) Transmission electron microscopy of muscle cells: wild-type (C), 3 days old; (D) wild-type, 35 days old; (E) wild-type, 60 days old; (F) 6 genomic copies of *kuk* (6× *kuk*), 3 days old; (G) 6× *kuk*, 30 days old; (H) 6× *kuk*, 36 days old. (I) UASkuk/GS-MHC induced with RU 486, 3 days old; (J) UASlamin B/GS-MHC induced with RU 486, 1 week old; (K) UASkuk/GS-MHC induced with RU 486, 31 days old. Muscle fibres (m), arrowheads nuclear protrusions (h) organelle-free holes in the tissue, arrows mark electron dense areas containing probably highly condensed chromatin, peripheral heterochromatin (p), lumen between inner and outer nuclear membrane (l), mitochondria (*); scale bar, 0.5 µm. (L) The non-farnesylated SAAX-*kuk* mutant (*kukCS*) localizes to the nuclear membrane and induces nuclear lobulation in wild-type embryos but not in *kuk* deficient embryos (Δ*kuk*). In wild-type embryos the Kuk staining levels increase after heat shock and lobulation of nuclei appears in *kukfl* as well as in *kukCS* expressing cells. In Δkuk embryos, only the full length Kuk localizes to the nuclear envelope and induces nuclear shape changes. The kukCS shows a predominantly nucleoplasmatic distribution and does not induce nuclear shape changes (lateral view of the extended germband, stage 9; green Lamin B, white Kuk staining).

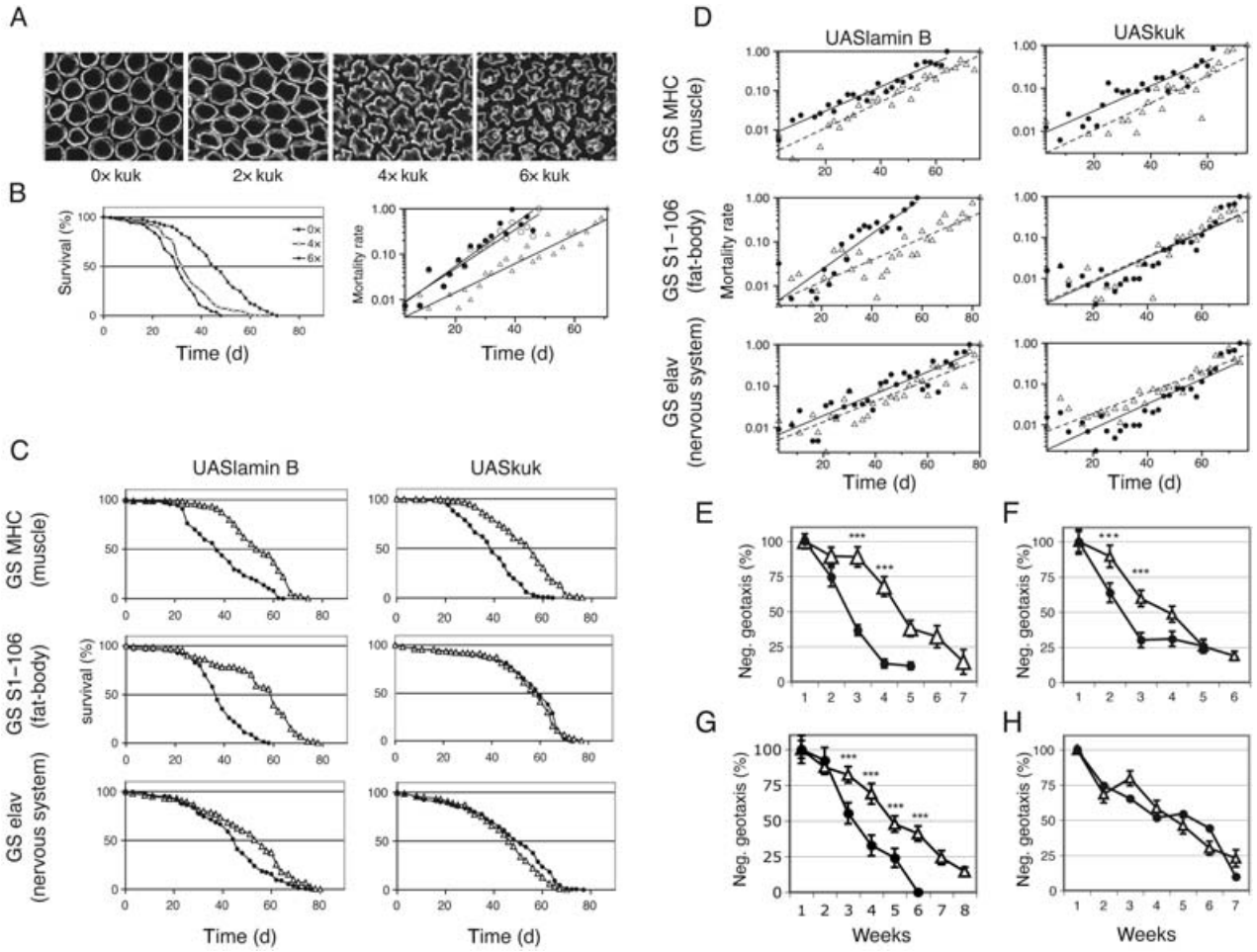

Fig. 2 Overexpression of lamina-proteins Lamin B or Kugelkern shortens *Drosophila* lifespan. (A) 0, 4 or 6 genomic copies of *kuk* in cellularizing embryos. Nuclei are stained with lamin B antibodies, apical side of nuclei in early cycle 14 are shown. In the absence of *kuk*, the nuclei are round and smooth, with increasing amounts of *kuk*, the nuclei show deep infoldings of the nuclear envelope. (B) The mean lifespan of flies is reduced when they contain 4 or 6 genomic copies of *kuk*. (C) Survival experiments of flies overexpressing lamin or *kuk* in specific tissues via the GeneSwitch system (GS) where expression is induced by RU 486 added to the food of the adult flies (solid lines and circles). Control flies have the same genotype but are not fed with RU 486 (dashed lines, open triangles). Log-rank tests compare induced and control flies. UASlamin/GS-MHC males: +RU 486, $n = 120$, 4 experiments; –RU 486, $n = 214$, 3 experiments; log-rank test: $p < 0.001$. UASlamin/GS-S1106: +RU 486, $n = 454$, 3 experiments; –RU 486, $n = 353$, 3 experiments; log-rank test: $p < 0.001$. UASlamin/GS-elav: +RU 486, $n = 441$, 3 experiments; –RU 486, $n = 421$, 3 experiments; log-rank test: $p < 0.001$. UASkuk/GS-MHC: +RU 486, $n = 558$, 5 experiments; –RU 486, $n = 811$, 7 experiments; log-rank test: $p < 0.001$. UASkuk/GS-S1106: +RU 486, $n = 454$, 3 experiments; –RU 486, $n = 353$, 3 experiments; log-rank test: $p = 0.0181$. UASkuk/GS-elav: +RU 486, $n = 441$, 3 experiments; –RU 486, $n = 421$, 3 experiments; log-rank test: $p < 0.001$. (D) Age-specific mortality rates of induced and control flies plotted on a log scale vs. time, fit by Gompertz model $[\ln(m_x) = \ln(m_0) + (ax)]$, where m_x = mortality rate at age x, m_0 = baseline mortality [intercept as $\ln(m_0)$] and a = change of mortality with age (slope of the trajectory). The slope of the mortality trajectory only differed significantly between induced and control in UASlamin B/GS-S1 06 flies ($p = 0.005$). Significantly different Y-intercepts between induced and control groups are found in UASlamin/GS-MHC ($p = 0.0002$), UASlamin/GS-elav ($p = 0.01$), or UASkuk/GS-MHC flies ($p = 0.04$). For detailed statistical analysis, see Supplementary Table S2. (E–H) Negative geotaxis of RU 486-induced UASlamin B/GS-MHC, UASkuk/GS-MHC, or UASkuk/GS-elav expressing flies (closed circle) as compared to un-induced control flies (open triangle). The mean distance climbed by the control flies in the first week is set as 100% negative geotaxis. (E) UASkuk/GS-MHC (3 replicate experiments). (F) UASlamin B/GS-MHC (three replicate experiments). (G) UASlamin B/GS-S1106 (3 replicate experiments). (H) UASkuk/GS-elav (1 experiment). One-way analysis of variance was followed by Bonferroni multiple comparison test (***$p < 0.001$). Statistical test are two-tailed, mean values are shown, error bars ± SEM. Primary data of lifespan experiments are shown in Supplementary table 2.

nuclear membrane, albeit weaker than that induced by normally farnesylated Kuk (Fig. 1L). Kuk probably forms homodimers (Brandt *et al.*, 2006). Thus, dimerization could explain the effect of *kukCS* expression in wild-type embryos where the mutant protein probably forms dimers with endogenous Kuk molecules. The finding that KukCS cannot localize to the nuclear envelope in the *kuk* deficient background and is not able to induce nuclear lobulation argues that the farnesyl residue is indeed required for Kuk localization and function.

Having shown specific age-dependent histological changes, we now tested whether induced expression of farnesylated proteins which affect lamina structure (Prüfert *et al.*, 2004; Ralle *et al.*, 2004; Brandt *et al.*, 2006) (Fig. 2A) would also provoke aging-like phenotypes. First, we tested flies containing 0, 4, or

6 genomic copies of *kuk* for their longevity. An increase in the dosage of *kuk* shortened the lifespan of the adult flies (Fig. 2B). To minimize the problem of genetic background as well as defects which may arise during development, we used tissue-specific drivers inducible with RU 486, where the difference between the experimental and control condition is the presence or absence of the inducing agent in the food of the adult flies (gene-switch system, GS) (Osterwalder *et al.*, 2001; Roman *et al.*, 2001). We found that conditional expression of *lamin B* or *kuk* in the adult muscle cells via the muscle-specific gene switch driver GS-MHC (Supplementary Fig. S3) decreased the lifespan compared to un-induced control flies of the same genotype (UASkuk/GS-MHC 60%, UASlamin B/GS-MHC 54% reduction of mean lifespan; Fig. 2C). Conditional expression of *lamin B* in the abdominal fat body, the fly equivalent of the liver and white adipose tissue via the GS-S1–106 driver (Hwangbo *et al.*, 2004), reduced the mean lifespan to 46% of un-induced control flies (Fig. 2C). Expression in the nervous system (UASlamin B/GS-elav; Osterwalder *et al.*, 2001) from the onset of adulthood decreased the mean lifespan not significantly (90%) (Fig. 2C). The expression of *kuk* in the fat body or in the nervous system did not influence the lifespan of the adult flies significantly (Fig. 2C). The increase of mortality rates of RU 486 induced kuk/GS-MHC, lamin B/GS-MHC, and lamin B/GS-elav flies were similar to non-induced flies, but their onset differed (Fig. 2D, Supplementary Table S2). An increase in the initial mortality may argue for a deleterious effect of *lamin B* or *kuk* overexpression. Only in lamin B/GS-S1106 induced flies, we observed a change in the demographic rate of aging (Fig. 2D), which is consistent with a potential role for the aging process (Pletcher *et al.*, 2000).

The variations found between UASkuk and UASlamin B in the tissue-specific driver lines may be due to different expression levels or may reflect tissue-specific functions. To test whether the lifespan data correlate with the morphology of the nuclei in the *lamin B* or *kuk* expressing tissues, we examined the nuclear size in fat body cells or in the optic lamina of 3-week-old RU 486 induced flies vs. control flies (Supplementary Fig. S4). Although we did not quantify nuclear size, after visual inspection we observed an increase of nuclear size in *lamin B* expressing fat body nuclei compared to control nuclei, but no changes in nuclear size in *kuk* expressing cells (Supplementary Fig. S4A). In *lamin B* expressing neuronal tissue, we observed a general increase in nuclear size. In *kuk* expressing brains only few neurons showed changes in nuclear size (Supplementary Fig. S4C). However, we refrained from a formal quantification, since this would require a cell type-specific evaluation and an elaborate analysis of the morphology of the adult brain, which would exceed the focus of this paper. Thus, the nuclear morphology of *lamin B* or *kuk* expressing cells seems to correlate with the tissue-specific effects observed in lifespan experiments. To better analyse our system, we tested the levels of *lamin B* or *kuk* expression in induced flies and found a moderate induction of *lamin B* or *kuk* expression in the different tissues (Supplementary Fig. S5). Between the different driver lines, the GS-MHC driver showed the strongest increase in UASkuk or UASlamin B expression compared to the lower induction by GS-S1106 (Supplementary Fig. S5), or the GS-elav line (data not shown). The more prominent induction of *kuk* or *lamin B* expression via the GS-MHC driver correlates with a strong effect on lifespan in these lines. Induction driven by the GS-S1106 or the GS-elav driver seems to be less pronounced and correlates with a more differential effect on lifespan. These flies appear to be more sensitive to *lamin B* than to *kuk* overexpression. In conclusion, our data argue more for a correlation of induction levels with phenotypic strength than for a tissue-specific effect of *lamin B* or *kuk* expression.

Negative geotaxis, an innate escape response during which flies climb the wall of a cylinder after being tapped to its bottom, is a well-characterized behavior that senesces in *Drosophila* (Gargano *et al.*, 2005). We found an early decline in the climbing ability in those flies that conditionally express *lamin B* in the muscle tissue, in fat body cells, or flies which express *kuk* in muscle tissue (Fig. 2E–H) but not in flies expressing *kuk* in the fat body (Supplementary Fig. S4B). Thus, the early onset of behavioral decline corresponds to the abnormal nuclear morphology, and the reduced lifespan found in these flies.

In UASkuk/GS-S1106 flies we found no difference between RU486 treated or untreated control flies of the same genotype with regard to lifespan (Fig. 2C), mortality rate (Fig. 2D), negative geotaxis (Supplementary Fig. S4B), or nuclear morphology (Supplementary Fig. S4A). These findings show that RU486 by itself has no effect in the assays we used.

To investigate whether there is an increase in DNA damage in aging flies, we stained 1-week- and 5-week-old muscle tissue with the H2A.X antibody which marks foci of double-stranded DNA damage (Scaffidi & Misteli, 2005). In young flies, only occasionally H2A.X foci were present, whereas the number of muscle nuclei with numerous H2A.X foci increased when the animal became older, indicating more DNA damage (Fig. 3A). The accumulation of H2A.X foci in aging flies is consistent with similar recent observations in aged human cells, cells from patients with HGPS, or baboons and mice (Scaffidi & Misteli, 2005, 2006). To find out whether *kuk* is indeed capable of influencing gene silencing or heterochromatic spreading, we tested whether *kuk* has an effect on position effect variation (PEV) using the w^{m4} allele where the white gene is translocated close to the heterochromatic region of the centromere (Ebert *et al.*, 2004). We found that in heterozygous *kuk* mutants the silencing of w^{m4} expression was suppressed and there were patches of red-pigmented ommatidia in the fly eyes (Fig. 3B). In homozygous *kuk* mutants the suppression of PEV was pronounced and a high number of ommatidia showed the red eye pigment (Fig. 3B). These results provide functional evidence that *kuk* may contribute to the regulation of heterochromatin formation.

In cultured fibroblasts from aged individuals, in HGPS cells and in cells overexpressing *laminΔ50* aberrant shaped-nuclei, a reduction of HP1 and Tri-Me-H3K9 staining levels, and an increase in DNA damage marked by H2A.X antibodies are found (Scaffidi & Misteli, 2005, 2006). To test if the induction of these changes is a lamin A-specific function or whether other proteins

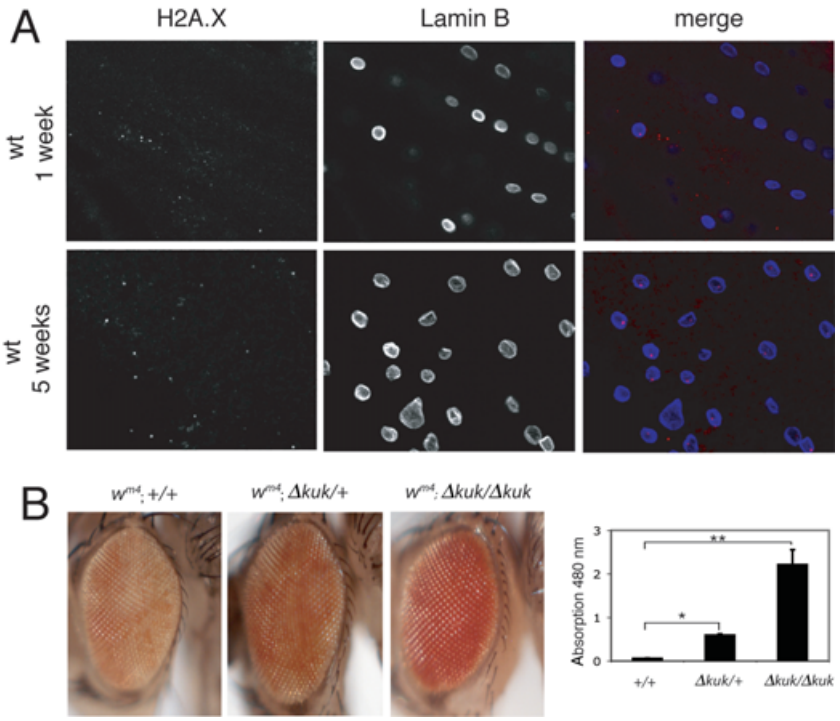

Fig. 3 DNA damage and gene silencing in adult flies. (A) H2A.X staining (red) in 1-week- or 5-week-old wild-type (wt) longitudinal muscle nuclei (lamin B, blue). Z-stacks of confocal images were fused to show several nuclei. (B) Position effect variegation of the w^{m4} allele. In heterozygous *kuk* mutants (w^{m4}; *Δkuk*/+) the silencing of w^{m4} expression is suppressed. In homozygous *kuk* mutants (w^{m4}; *Δkuk*/*Δkuk*) the suppression of PEV is even more pronounced compared to control flies (w^{m4}; +/+). (C) Photometric measurement of the eye pigments of flies from the genotypes described in (B). $n = 50$ males per genotype, error bars show ± SEM.

that affect nuclear lamina structure are also able to induce age-related phenotypes, we expressed *kuk* or *laminBΔN*, a truncated *lamin B* variant which only consists of a nuclear localization signal and the C-terminal farnesylation site (Prüfert *et al*., 2004) in mouse fibroblasts (Fig. 4A–C). Indeed, the number of H2A.X foci containing nuclei was significantly higher in the group of transfected cells compared to the control group (Fig. 4B–D). Moreover, we found a significant reduction in HP1 and Tri-Me-H3K9 staining levels in cells transfected with *kuk* or *laminBΔN* compared to non-transfected cells (Fig. 4B–D). We conclude that *kuk* as well as *laminBΔN* are able to induce similar cellular phenotypes as previously characterized in cultured fibroblasts from old individuals or in cells from HGPS patients (Goldman *et al*., 2004; Liu *et al*., 2005; Scaffidi & Misteli, 2005, 2006; Shumaker *et al*., 2006). Strikingly, we found a strong increase in A414 staining, a marker for nucleoporins, in *laminBΔN* or in *kuk* transfected cells, whereas the control cells showed a normal punctuated nuclear pore staining (Fig. 4B,C). Similar to the nucleoporin staining of late passage-HGPS cells reported by Goldman *et al*. (2004), we found nuclear pores aggregating to large bright masses, which were associated with the infoldings of the nuclear envelope of the highly lobulated nuclei (Fig. 4B,C). In conclusion, we show that a truncated *lamin B* construct reduced to its nuclear localization and farnesylation signal, and even the *Drosophila*-specific *kuk* are able to induce age-related nuclear changes in mammalian cells.

Discussion

Our study demonstrates, taking together the reduced lifespan, the early onset of behavioural decline, the reduced heterochromatin levels, and the increase in DNA damage, that expression of *kuk* or *lamin B* induces a pathology which is similar to that observed in aging flies.

So far, *Drosophila* lamins have been characterized mainly in loss-of-function situations. In *Drosophila*, a presumably null mutant of the *Drosophila lamin C* is lethal (Schulze *et al*., 2005). *Lamin B* deletions are pupal lethal and show defects during cell proliferation, and aberrant tissue differentiation but no obvious defects in nuclear shape has been observed (Osouda *et al*., 2005). Muñoz-Alarcón *et al*. (2007) found a negative effect of different *lamin B* or *C* loss-of-function mutations concerning the viability and physical fitness in *Drosophila*. Larvae move less and show subtle muscle phenotypes and the few surviving adults are flightless and walk slowly. Overexpression of mutant *lamin C* forms where the rod domain or the N-terminus of the protein were deleted lead to aggregation of the protein in larval salivary gland tissue. The authors found an interaction of *lamin C* with endogenous *lamin B* (Muñoz-Alarcón *et al*., 2007). These findings may help to analyse the mechanisms of laminopathies other than HGPS where loss-of-function mutations cause the disease (e.g. Emery–Dreifuss muscular dystrophy). However, it is questionable whether these mutants can be used to study aging processes, since it is difficult to distinguish defects caused throughout development and defects directly related to aging. Muñoz-Alarcón *et al*. (2007) overexpressed *Drosophila lamin B*, or *C*, human *LMNA*, or *laminΔ50* in *Drosophila*, using the UAS/GAL system. In all of these cases viability was severely affected, resulting in low eclosing rates and early mortality. To approximate the situation in HGPS where *laminΔ50* acts dominantly, overexpression of the gene variants should be in a time and tissue-specific manner. The GeneSwitch system

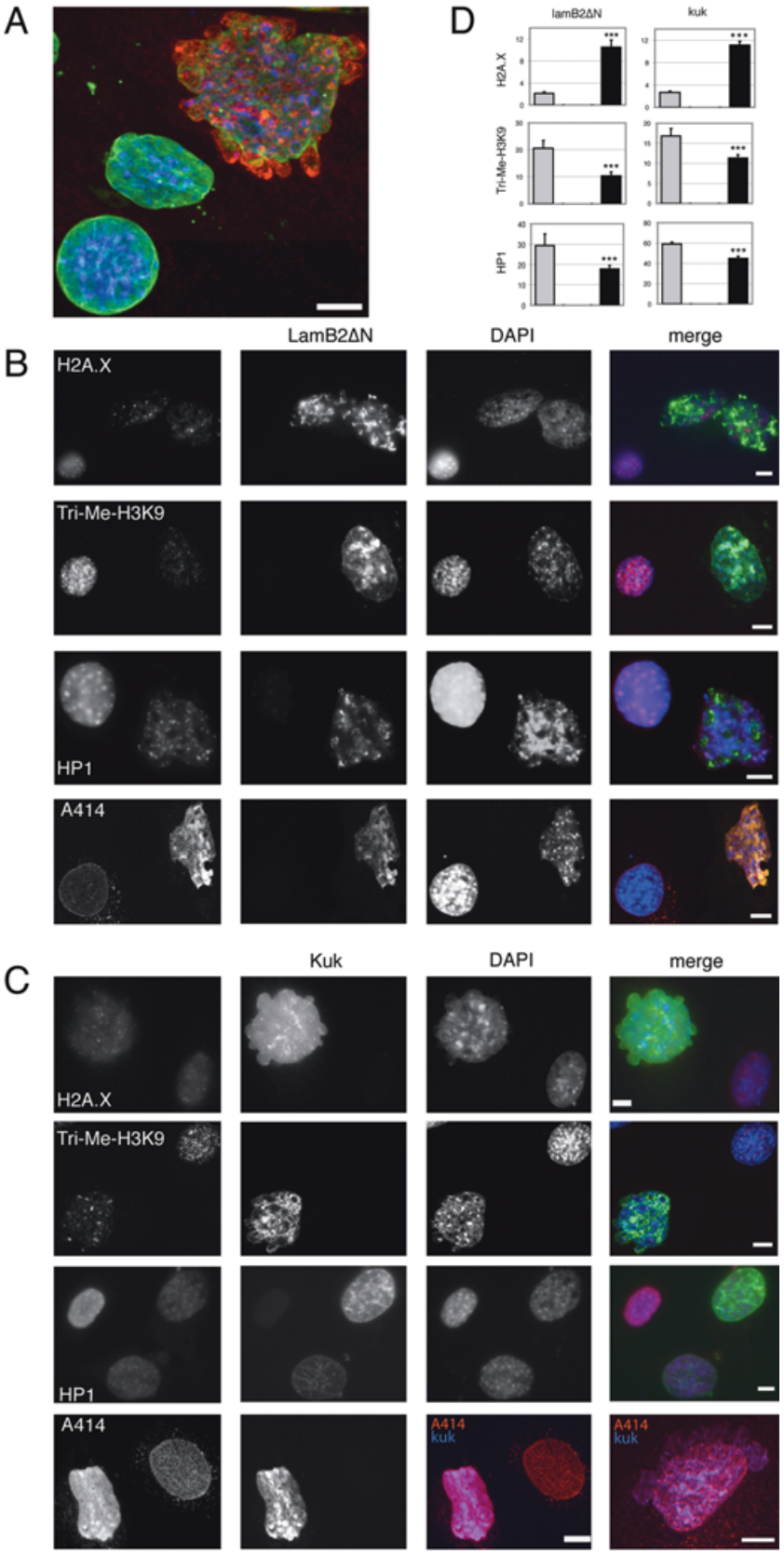

Fig. 4 Overexpression of *laminB2ΔN* or *kugelkern* induces DNA damage and changes the levels of nuclear proteins in cultured mouse fibroblast cells. (A–C) Immunofluorescence microscopy of NIH3T3 mouse fibroblasts transfected with HA*kuk* (kuk, A and C) or laminB2ΔN-GFP (laminB2ΔN, B). Cells were stained with DAPI (blue) and antibodies against the indicated proteins (green: laminB2ΔN-GFP, laminA/C, or HA Kuk, red: H2A.X, Tri-Me-H3K9, HP1, A414). Scale bar, 5 μm. (D) Comparison of the total number of H2A.X foci in one focus plane (H2A.X) or of the relative fluorescent intensities (%) between *laminB2ΔN* or *kuk* transfected cells and untransfected control cells (Tri-Me-H3K9, HP1). Mann–Whitney *U*-test for *kuk* transfected cells stained with H2A.X: $U_A = 781.5$; $z = -4.98$; $p < 0.0001$; $N_{control} = 60$ cells, $N_{kuk} = 14$ cells. *kuk* transfected cells stained with HP1: Mann–Whitney *U*-test, $U_A = 9855.5$; $z = -25.13$; $p < 0.0001$; $N_{control} = 90$ cells, $N_{kuk} = 65$ cells. *kuk* transfected cells stained with Tri-Me-H3K9: Mann–Whitney *U*-test, $U_A = 6683.5$; $z = -26.83$; $p < 0.0001$; $N_{control} = 82$ cells, $N_{kuk} = 41$ cells. *laminB2ΔN* transfected cells stained with H2A.X: Mann–Whitney *U*-test, $U_A = 3786.5$; $z = -8.34$; $p < 0.0001$; $N_{control} = 74$ cells, $N_{kuk} = 55$ cells. *laminB2ΔN* transfected cells stained with HP1: Mann–Whitney *U*-test, $U_A = 14268$; $z = -34.27$; $p < 0.0001$; $N_{control} = 123$ cells, $N_{kuk} = 55$ cells. *laminB2ΔN* transfected cells stained with Tri-Me-H3K9: Mann–Whitney *U*-test, $U_A = 12243$; $z = -12.27$; $p < 0.0001$; $N_{control} = 148$ cells, $N_{kuk} = 84$ cells. All test are two-tailed, mean values of three replicates per experiments are shown, error bars ± SEM.

allowed us to minimize the problem of genetic background as well as to circumvent defects that may arise during development (Osterwalder *et al*., 2001; Roman & Davis, 2002) and we were able to analyse the effect of the conditional *lamin B* or *kuk* expression in adult flies.

Age-associated accumulation of DNA damage and changes in chromatin organization may act independently of the nuclear envelope configuration (Oberdoerffer & Sinclair, 2007). Since both *LAMIN B* and *KUK* are obligatory localized at the nuclear lamina and can induce phenotypes similar to those observed in aging flies, our data support a model where a dysmorphic nuclear lamina itself can provoke changes in the chromatin organization, thereby affecting DNA repair mechanisms (Lans & Hoeijmakers, 2006). Thus, our work helps to distinguish these models. Since not only LAMINΔ50 but also other permanently farnesylated lamin variants can induce aging-like symptoms, these findings can extend the focus from *laminΔ50*/HGPS to other lamina proteins and the nuclear lamina as such, which may as well contribute to the physiological aging process.

Several mechanisms by which abnormal nuclear morphology can act on the aging process are discussed. The aberrant nuclear morphology may interfere with mitosis, thereby reducing the regenerative capacity of the organism (Cao *et al*., 2007). This mechanism cannot play a major role in mostly post-mitotic organisms as *Drosophila* or *C. elegans*. Structurally, the stability of the nucleus may be impaired which would make them more vulnerable to mechanical stress (Lammerding *et al*., 2004). In HGPS cells, LAMIN A and C become trapped at the nuclear periphery, which significantly reduces the ability of the nuclear lamina to rearrange under mechanical stress, which might lead to misregulation of mechanosensitive gene expression (Dahl *et al*., 2006). It would be interesting to see whether similar mechanisms work in cells from aged healthy individuals and to see whether other nuclear lamina proteins are involved. The dramatic changes in nuclear pore complex formation and distribution observed in HGPS cells, also recapitulated in *kuk* or *lamin B* expressing cells, may be linked to the aging process in that the nucleocytoplasmic transport or the interaction of the nuclear pores with chromatin is altered (Akhtar & Gasser, 2007). The normal function of the nonfarnesylated LAMIN A in the nucleoplasm may be disrupted, since lamin A and its binding partners are depleted in the nucleoplasm by membrane-bound LaminΔ50 (Haithcock *et al*., 2005). We could show that a very truncated *lamin B* variant, *laminBΔN*, which lacks the coiled-coil domain, is able to induce age-related phenotypes. Moreover, even Kugelkern, a *Drosophila*-specific protein, which has no known homolog in vertebrates can induce similar changes as described for human cells expressing LaminΔ50. It therefore seems unlikely that a LAMIN A-specific effect alone accounts for the phenotypes observed.

The focus on the nuclear lamina will have an influence on our integral understanding of the aging process and possible strategies of how to defy it. Future experiments involving genetically tractable organisms like *Drosophila* may help to resolve the molecular and genetic basis of the link between nuclear morphology, and chromatin structure and stability.

Experimental procedures

Cell culture

NIH3T3 cells were cultured in DMEM (Invitrogen/Gibco, Karlsruhe, Germany) supplemented with 10% fetal bovine serum and 2 mM L-glutamine at 37 °C. We plated NIH3T3 cells in 6-wells containing cover slips and transiently transfected them with Effectene (Qiagen, Hilden, Germany) when they reached a confluence of 25–30% with pCS2*HAkuk* (referred to here as *kuk*; Brandt *et al*., 2006) or pCS2*XlaminB2ΔNGFP* (referred to here as *laminB2ΔN*; Prüfert *et al*., 2004) (2 μg construct/6-well). They were cultivated for 48 h (HP1 and Tri-Me-H3K9 staining) or for 72 h (H2A.X staining). After washing in phosphate-buffered saline (PBS), cells were fixed with 2% formaldehyde in PBS containing 0.2% Tween and 0.5% NP-40 for 20 min at room temperature (RT). After washing in PBS, cells were permeabilized in PBS with 0.5% Triton X-100 plus 0.5% Saponin (Sigma, Munich, Germany) for 10 min.

Immunohistochemistry

Adult males were anaesthetised; the head, abdomen, legs, and wings were cut off. The thorax was transferred to ice cold Schneider cell medium where it was split into half and subsequently fixed with 8% formaldehyde in PBS containing 0.2% Tween and 0.5% NP-40 for 40 min at RT. After washing in PBS the thoraces were permeabilized in PBS with 0.5% Triton X-100 plus 0.5% Saponin (Sigma) for 1–5 days at 4 °C. Before staining, the fixed thoraces were manipulated that only one end of the muscles stuck to the cuticle and the other end was free floating and better accessible to the staining reagents. Consecutively the muscles were blocked in PBS plus Tween (Sigma) with 5% BSA and stained in PBT containing primary antibodies, fluorescent secondary antibodies (4 μg mL^{-1}, Alexa, Molecular Probes, Invitrogen, Karlsruhe, Germany) or DAPI and mounted in Aquapolymount (Polyscience, Heidelberg, Germany). Antibodies used were A414 (Sigma, 1 μg mL^{-1}), *Drosophila* HP1 (DSHB, Iowa, USA, C1A9, H2A.X (Chemicon, Hampshire, UK, 1 : 5000), mouse HP1 (Chemicon, 1 : 2500), Kuk (0.2 μg mL^{-1}), Tri-Me-H3K9 (upstate, 0.2 μg mL^{-1}), 0.1 μg mL^{-1}), *Drosophila* Lamin B (LaminDmO, Saumweber, Berlin, Germany, 0.1 μg mL^{-1}), human laminA/C (0.2 μg mL^{-1}; Santa Cruz Biotechnology, Santa Cruz, CA, USA), and HA (Babco, Richmond, CA, USA, 1 : 2000).

Microscopy

Digital fluorescent images were either taken with a confocal microscope (Leica, Solms, Germany) or with a fluorescent microscope connected to a Progress (Jenoptik, Jena, Germany) camera and processed with Adobe Photoshop. Measurements were performed with ImageJ with the perimeter tool (nuclear perimeter), the mean grey value tool (relative fluorescent intensity) and the maximum intensity tool. For measuring relative fluorescent intensity of HP1 and Tri-Me-H3K9 stainings, three

independent experiments were analysed at the fluorescent microscope. To avoid overexposure, we did not use the entire 8-bit scale of grey values; thus, for each experiment the maximum intensity was set as 100%. The number of H2AX foci per nucleus might be underestimated since we only counted those foci that were in the focus plane of the picture (Mann–Whitney *U*-test, http://faculty.vassar.edu/lowry/VassarStats.html). For measurement of the muscle perimeters we acquired confocal image Z-stacks of the longitudinal muscles with a slice distance of approximately 1 μm and assembled them in ImageJ with the z-stack/SUM function. For each time point three individual flies were analysed. Statistical analysis was performed with Prism GraphPad software (one- or two-way analysis of variance followed by Bonferroni post tests).

To induce conditional expression of the full-length *kuk* or the nonfarnesylated SaaX-mutant *kuk* (*kukCS*) in wild-type or in *kuk*-deficient embryos (*Δkuk*), transgenic embryos containing the respective heat-shock constructs were heat shocked for 45 min. After 45-min recovery the embryos were fixed and stained with Kuk or Lamin B antibodies. The pictures were taken with identical microscope settings.

Electron microscopy

Thoraces were fixed and processed for electron microscopy as described (Fyrberg *et al*., 1990). In contrast to Fyrberg *et al*. (1990), we omitted the tannic acid from the 3% glutaraldehyde solution. Ultrathin sections were inspected with a Zeiss EM900 and a Zeiss EM10 electron microscope (Oberkochen, Germany). Negatives were digitalized by scanning and processed with Adobe Photoshop.

Files and Genetics

GeneSwitch-Gal4 (GS) flies were provided by J. H. Bauer, S. L. Helfand, and H. Keshishian. UASlamin B flies are described in (Guillemin *et al*., 2001). The w^{m4h} flies were provided by G. Reuter, Halle. For pUASkuk the cDNA from LD09231 was cloned as *Not*I-*Apa*I/blunt fragment into the *Not*I-*Xba*I/blunt sites of pUASp. To obtain heat-shock inducible constructs of full-length *kuk* (*kuk*) or mutant *kuk* (*kukCS*), we first cloned the *kuk* coding sequence with parts of its 3 untranslated region as *Nco*I-*Sma*I fragments from CS-*kuk* or CS-*kukCS* plasmids into the $QEH_{10}ZZ$ plasmid. The final constructs HS-kuk and HS-kukCS were cloned as ES fragments with Eco-Stu sites into the plasmid casperHS. Transgenic flies were made by P-element-mediated transformation. The genomic rescue constructs (Brandt *et al*., 2006) 4× and 6× kuk are located on the second and third chromosome. 0× *kuk* consists of a deletion of *kuk* and CG5169 together with a rescue construct of CG5169 over Df(3R)Ex6176 (Brandt *et al*., 2006).

Lifespan assays

All flies were raised and kept in a humidified, temperature-controlled incubator with 12-h light : dark cycle at 25 °C in vials containing standard cornmeal medium (2.5% yeast, 2.18% treacle, 1% soya meal, 8% cornmeal, 8% malt, 1.25% propionic acid). In the case of UASlamin B/GS-MHC, flies were raised at 18 °C. Flies were collected under short anaesthesia. Each demography cage was initiated with at least 150 newly eclosed males. The number of deceased flies was recorded every 2–3 days, when flies were transferred to fresh food plates. For induction with the GeneSwitch system, RU 486 (Sigma) was added directly to the food to a final concentration of 200 μM. The data across 3–5 replicate demography cages per treatment and genotype were combined. Both Statview 5.0 and Prism GraphPad software were used for survival data (log-rank test) and mortality curves analysis (linear regression).

Negative geotaxis assays

Negative geotaxis was assessed as previously described (Gargano *et al*., 2005). Negative geotaxis behaviour was recorded as the net distance (cm) climbed by individual males in a vertical plastic tube during a 10-s test period that began immediately after being tapped to the bottom of the tube. For each genotype and treatment 25 males were tested per week. The mean distance climbed by the control flies in the first week was set as 100% negative geotaxis. One to three replicative experiments were performed and the data were analysed using Prism 3.0 (GraphPad Software, San Diego, CA, USA).

Eye pigment measurement

Ten newly eclosed males were aged for 5 days at 25 °C, decapitated with tweezers and immediately shock-frozen in liquid nitrogen. For extraction of the eye pigments, fly heads were homogenized in 0.1 M glycine/HCl (pH 2) containing 30% ethanol and kept in the dark for 24 h at room temperature. After clarification by several brief centrifugations, the absorption of the pigments was measured at 480 nm. Five independent extractions were performed for each genotype. VassarStat statistical software was used (Mann–Whitney *U*-test; http://faculty.vassar.edu/lowry/VassarStats.html).

Biochemistry

Proteins were analysed by sodium dodecyl sulfate–polyacrylamide gel electrophoresis (SDS-PAGE) according to standard protocols. For Western blotting, proteins separated by SDS-PAGE were transferred by semidry blotting to a nitrocellulose membrane (Protran, Schleicher and Schuell) and stained by Ponceau Red. The blots were developed with IgG coupled with peroxidase and chemiluminescence (ECLplus, Amersham,Munich, Germany). The following antibody concentrations were used: lamin B (polyclonal, 1 : 1000), Kuk (rabbit, 0.1 μg mL^{-1}).

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Supplementary material

The following supplementary material is available for this article:

Fig. S1 Transmission electron microscopy of muscle cells. Wild-type, 3 days old; wild-type, 35 days old; wild-type, 60 days old;

6 genomic copies of *kuk* (6× *kuk*), 3 days old; 6× *kuk*, 30 days old; 6× *kuk*, 36 days old;. UASkuk/GS-MHC induced with RU 486, 3 days old; UASlamin B/GS-MHC induced with RU 486, 1 week old; UASkuk/GS-MHC induced with RU 486, 31 days old. Magnification is indicated on each panel.

Fig. S2 Transmission-electron microscopy of 1-week-old RU 486 induced UASkuk/GS-MHC (A–C), UASlamin B/GS MHC (D), or of 37-day-old 4× *kuk* flies (E). (A) Shows an enlarged muscle nucleus embedded in intact muscle organelles. (B) Epithelial cell with inconspicuous nucleus located close to the cuticle (cu). (C) Nucleus of a fat body cell surrounded by lipid droplets (lip). (D) Intestinal cell with microvilli (mv). The nucleus appears normal in size and shape. (E) Nucleus in neuronal tissue shows normal morphology. Arrowheads point to nuclear membrane, scale bar: 0.2 μm.

Fig. S3 GeneSwitch-MHC (GS-MHC) drives the expression of UASGFPkuk (green, or white; DAPI, blue) in muscle cells. Unfixed tissue was mounted in 50% glycerol containing DAPI staining solution and immediately photographed. (A) Muscle cells of the cibarial pump show pronounced GFPkuk expression in the nuclei (arrowhead). Muscle cell nuclei in the leg (B, E) or in the lateral tergosternal muscles of the abdominal body wall (C) show intense GFPkuk expression. The direct (D, D′) or indirect (F, F′) flight muscles show strong GFPkuk expression in the nuclei. The un-induced control flies had week GFPkuk expression in the indirect flight muscles (arrowhead); GFPkuk was not detected in other tissues. Scale bar 10 μm.

Fig. S4 Conditional expression of *lamin B* or *kuk* in fat body or neuronal cells. Unfixed tissue was mounted in 50% glycerol containing DAPI staining solution and immediately photographed. (A–D) Adult flies of the genotypes UASlamin B, UAS-actinGFP/GS-S1106 or UASkuk, UASactinGFP/GS-S1106 were fed for 3 weeks with RU 486 to induce expression in fat body cells. In lamin B-expressing cells (B), nuclear size is increased compared to un-induced control cells (A). In *kuk*-expressing cells (D), no increase in nuclear size is observed in induced flies compared to control flies of the same age (C). In *lamin B*-expressing neurons (I–K), nuclear size is increased compared to control cells (E–H). In *kuk*-expressing neurons (O–R), only few cells show an increase in nuclear size compared to control cells (M, N). (E–R) pictures of the left column show DIC overviews of the corresponding picture of the right column. In red, the red eye pigments of the ommatidia are shown. The right column shows DAPI staining (blue or white) and GFP expression (green). (E, F) shows an overview of an un-induced UASlamin B, UASactinGFP/GS-elav brain. (G, H) show a magnification of the optic lamina of the same brain. (I, J) show an overview of an induced *lamin B*-expressing brain (K, J) in the magnification of the optic lamina most nuclei are enlarged (arrowhead). In (O, P) expression of *kuk* is induced, only few nuclei show an increase in size (arrowhead) compared to un-induced control cells (M, N). Blue, DAPI; green: GFP; scale bar 0.5 μm. (Q) Negative geotaxis assay of UASkuk/GS-S1106 flies.

Fig. S5 Quantification of the tissue-specific induction of *lamin B* (A) or *kuk* (B) expression in 10-day-old males. (+) RU 486 induced expression (–) un-induced flies. The strongest induction of Kuk is observed with the GS-MHC driver.

Table S1 Lifetime survival data of adult *Drosophila* flies over-expresssing *lamin B* or *kugelkern*. Number of flies entering the age-interval (Nx); number of dead flies within the age interval (dx); number of flies censored within the age interval (cx). Total number of flies (*N*).

Table S2 Statistical analysis of mortality data. Description of the slope or the *Y*-intercept of the best-fit regression line, correlation coefficient (r^2). Linear regression analysis of slope or Y-intercepts between induced and control flies.

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Supporting information to Brandt, Krohne, Großhans. Ageing Cell 4 (2008) 541-551

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Fig. S2 Transmission-electron microscopy of 1-week-old RU 486 induced UASkuk/GS-MHC (A–C), UASlamin B/GS MHC (D), or of 37-day-old 4× *kuk* flies (E). (A) Shows an enlarged muscle nucleus embedded in intact muscle organelles. (B) Epithelial cell with inconspicuous nucleus located close to the cuticle (cu). (C) Nucleus of a fat body cell surrounded by lipid droplets (lip). (D) Intestinal cell with microvilli (mv). The nucleus appears normal in size and shape. (E) Nucleus in neuronal tissue shows normal morphology. Arrowheads point to nuclear membrane, scale bar: 0.2 μm.

Fig. S3 GeneSwitch-MHC (GS-MHC) drives the expression of UASGFPkuk (green, or white; DAPI, blue) in muscle cells. Unfixed tissue was mounted in 50% glycerol containing DAPI staining solution and immediately photographed. (A) Muscle cells of the cibarial pump show pronounced GFPkuk expression in the nuclei (arrowhead). Muscle cell nuclei in the leg (B, E) or in the lateral tergosternal muscles of the abdominal body wall (C) show intense GFPkuk expression. The direct (D, D′) or indirect (F, F′) flight muscles show strong GFPkuk expression in the nuclei. The un-induced control flies had week GFPkuk expression in the indirect flight muscles (arrowhead); GFPkuk was not detected in other tissues. Scale bar 10 μm.

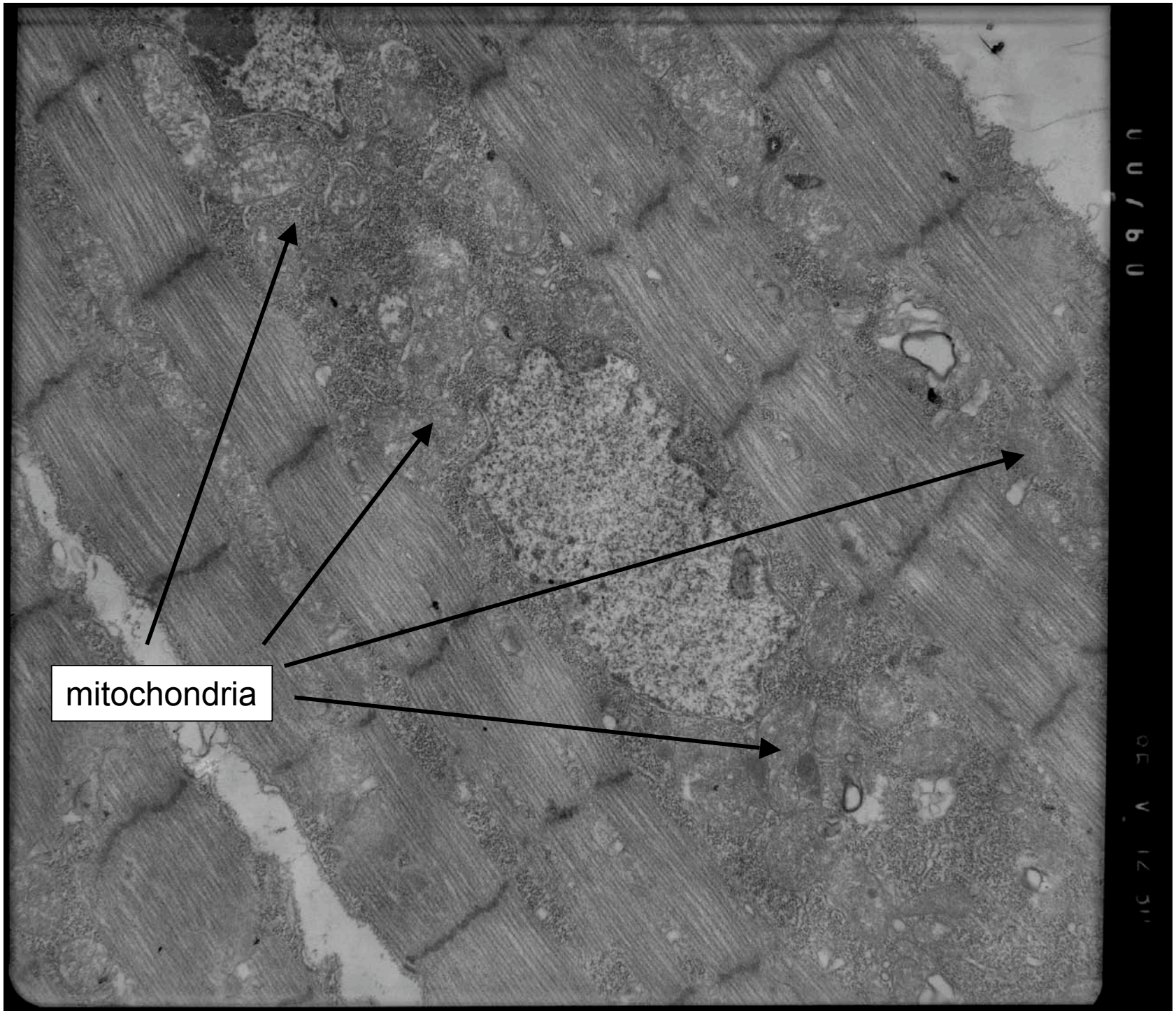
Fig. S4 Conditional expression of *lamin B* or *kuk* in fat body or neuronal cells. Unfixed tissue was mounted in 50% glycerol containing DAPI staining solution and immediately photographed. (A–D) Adult flies of the genotypes UASlamin B, UASactinGFP/GS-S1106 or UASkuk, UASactinGFP/GS-S1106 were fed for 3 weeks with RU 486 to induce expression in fat body cells. In lamin B-expressing cells (B), nuclear size is increased compared to un-induced control cells (A). In *kuk*-expressing cells (D), no increase in nuclear size is observed in induced flies compared to control flies of the same age (C). In *lamin B*-expressing neurons (I–K), nuclear size is increased compared to control cells (E–H). In *kuk*-expressing neurons (O–R), only few cells show an increase in nuclear size compared to control cells (M, N). (E–R) pictures of the left column show DIC overviews of the corresponding picture of the right column. In red, the red eye pigments of the ommatidia are shown. The right column shows DAPI staining (blue or white) and GFP expression (green). (E, F) shows an overview of an un-induced UASlamin B, UASactinGFP/GS-elav brain. (G, H) show a magnification of the optic lamina of the same brain. (I, J) show an overview of an induced *lamin B*-expressing brain (K, J) in the magnification of the optic lamina most nuclei are enlarged (arrowhead). In (O, P) expression of *kuk* is induced, only few nuclei show an increase in size (arrowhead) compared to un-induced control cells (M, N). Blue, DAPI; green: GFP;

scale bar 0.5 μm. (Q) Negative geotaxis assay of UASkuk/GS-S1106 flies.

Fig. S5 Quantification of the tissue-specific induction of *lamin B* (A) or *kuk* (B) expression in 10-day-old males. (+) RU 486 induced expression (–) un-induced flies. The strongest induction of Kuk is observed with the GS-MHC driver.

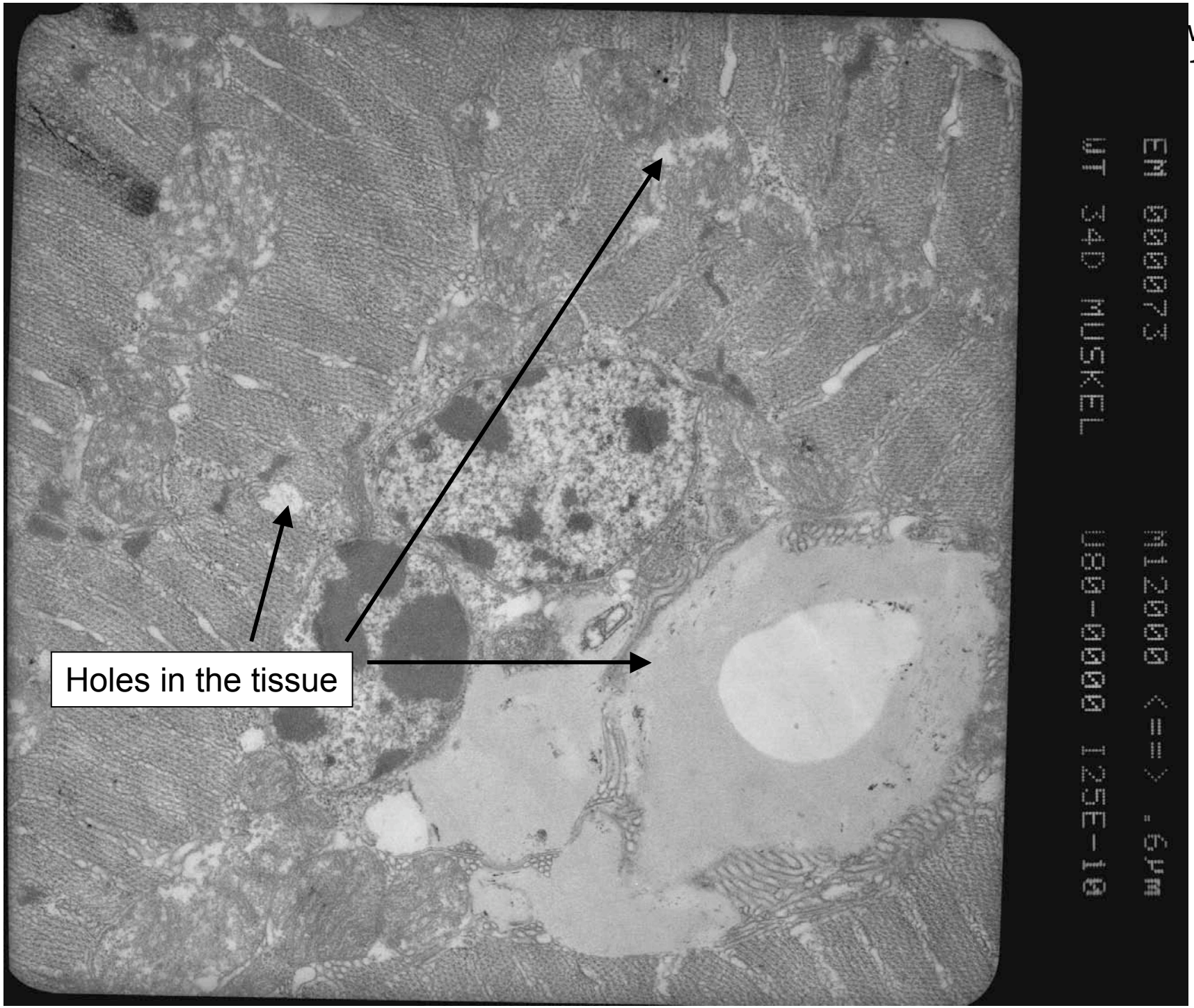
Table S1 Lifetime survival data of adult *Drosophila* flies overexpresssing *lamin B* or *kugelkern*. Number of flies entering the age-interval (Nx); number of dead flies within the age interval (dx); number of flies censored within the age interval (cx). Total number of flies (*N*).

Table S2 Statistical analysis of mortality data. Description of the slope or the *Y*-intercept of the best-fit regression line, correlation coefficient (r^2). Linear regression analysis of slope or Y-intercepts between induced and control flies

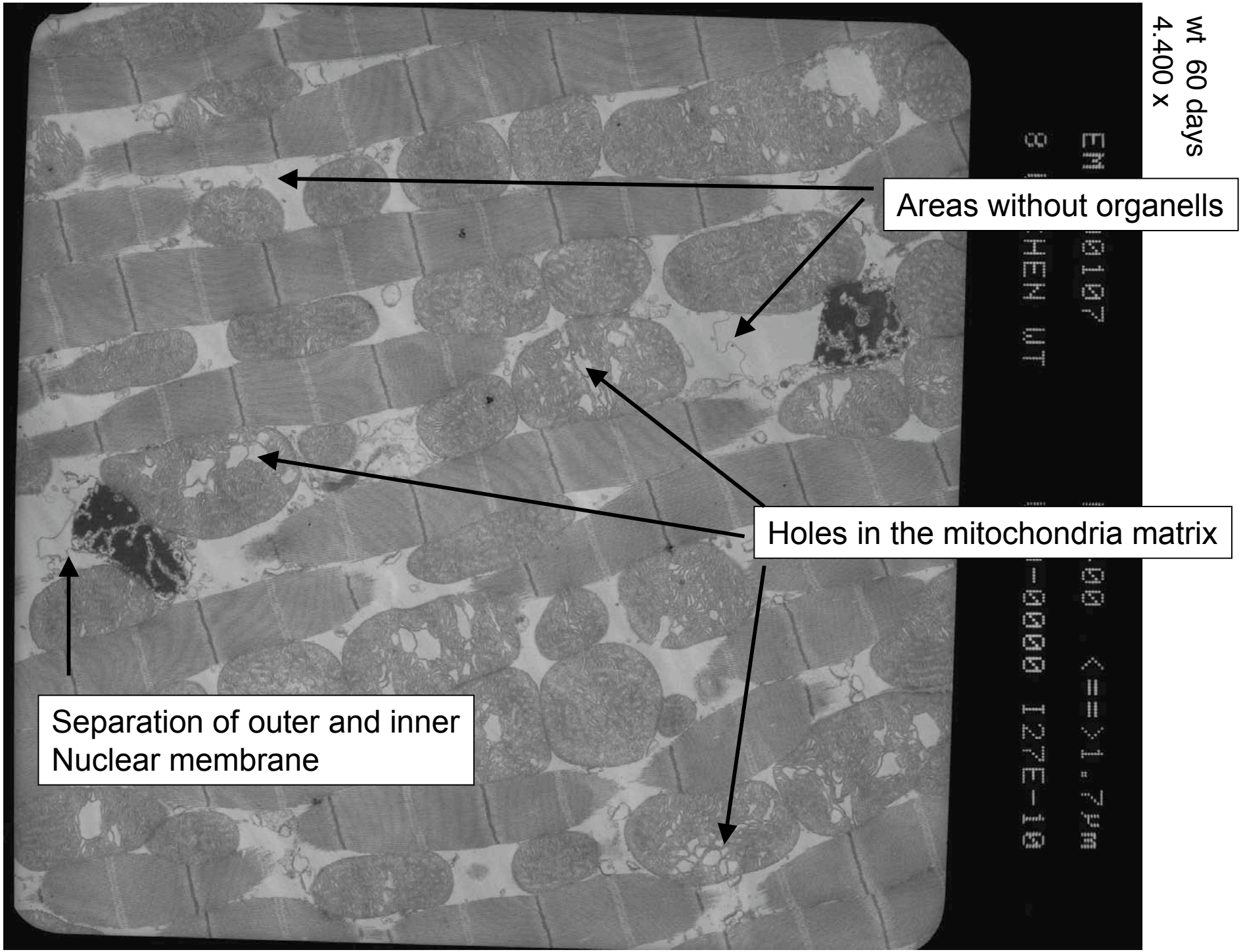


wt 3 days
10.000 x

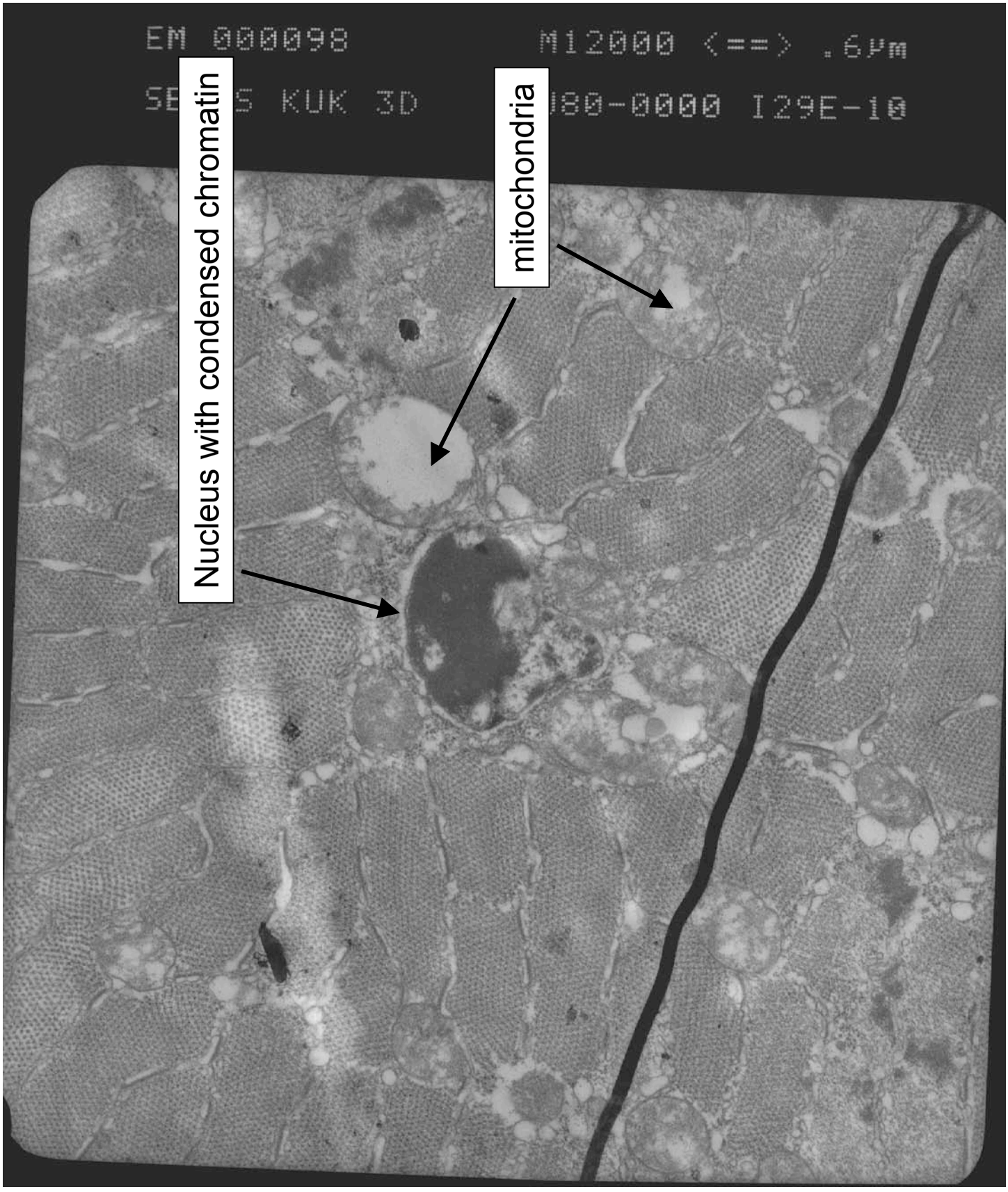
wt 34 days
12.000 x



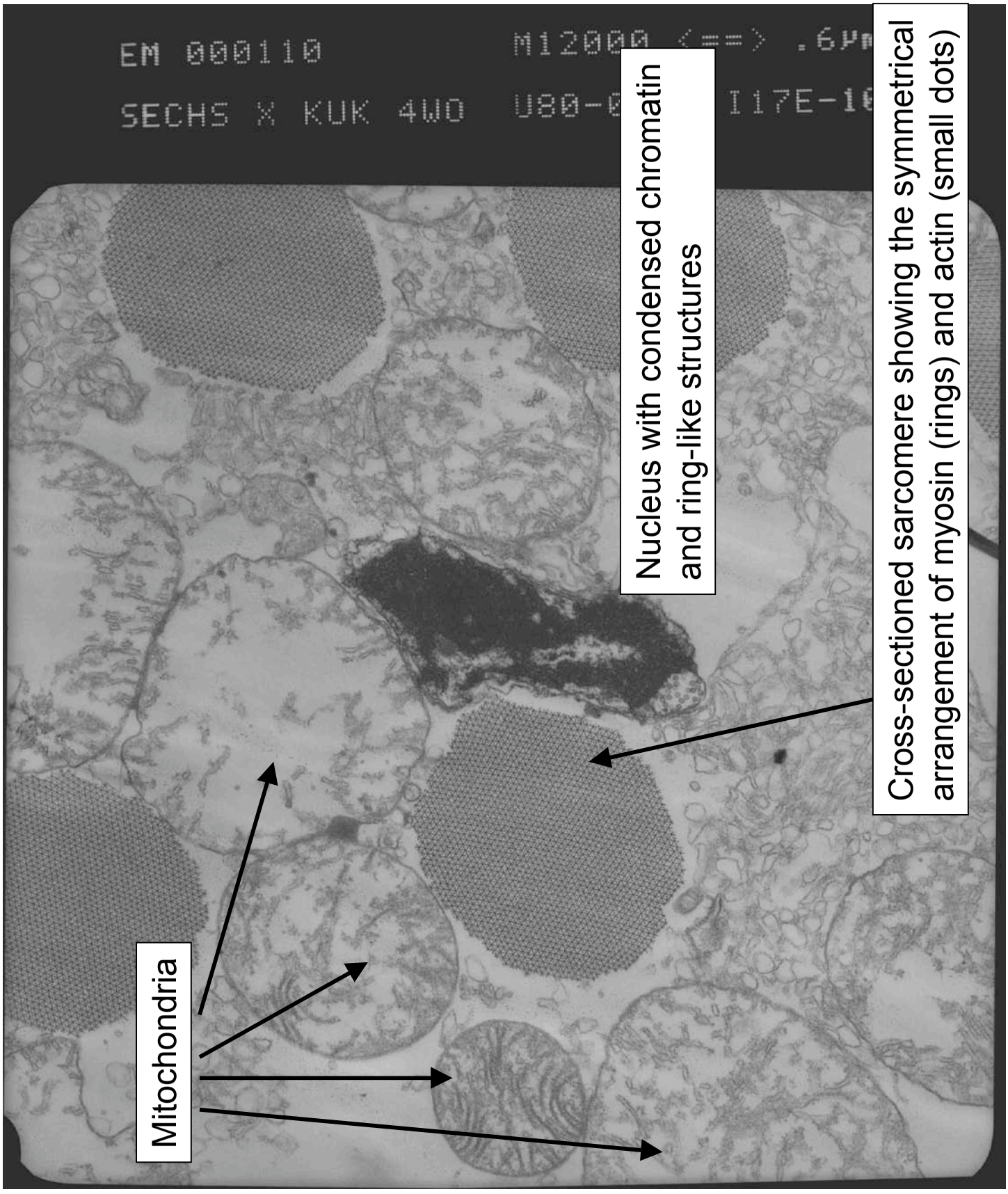
wt 34 days
10.000 x


wt 60 days
4.400 x
Areas without organells
Holes in the mitochondria matrix
Separation of outer and inner
Nuclear membrane

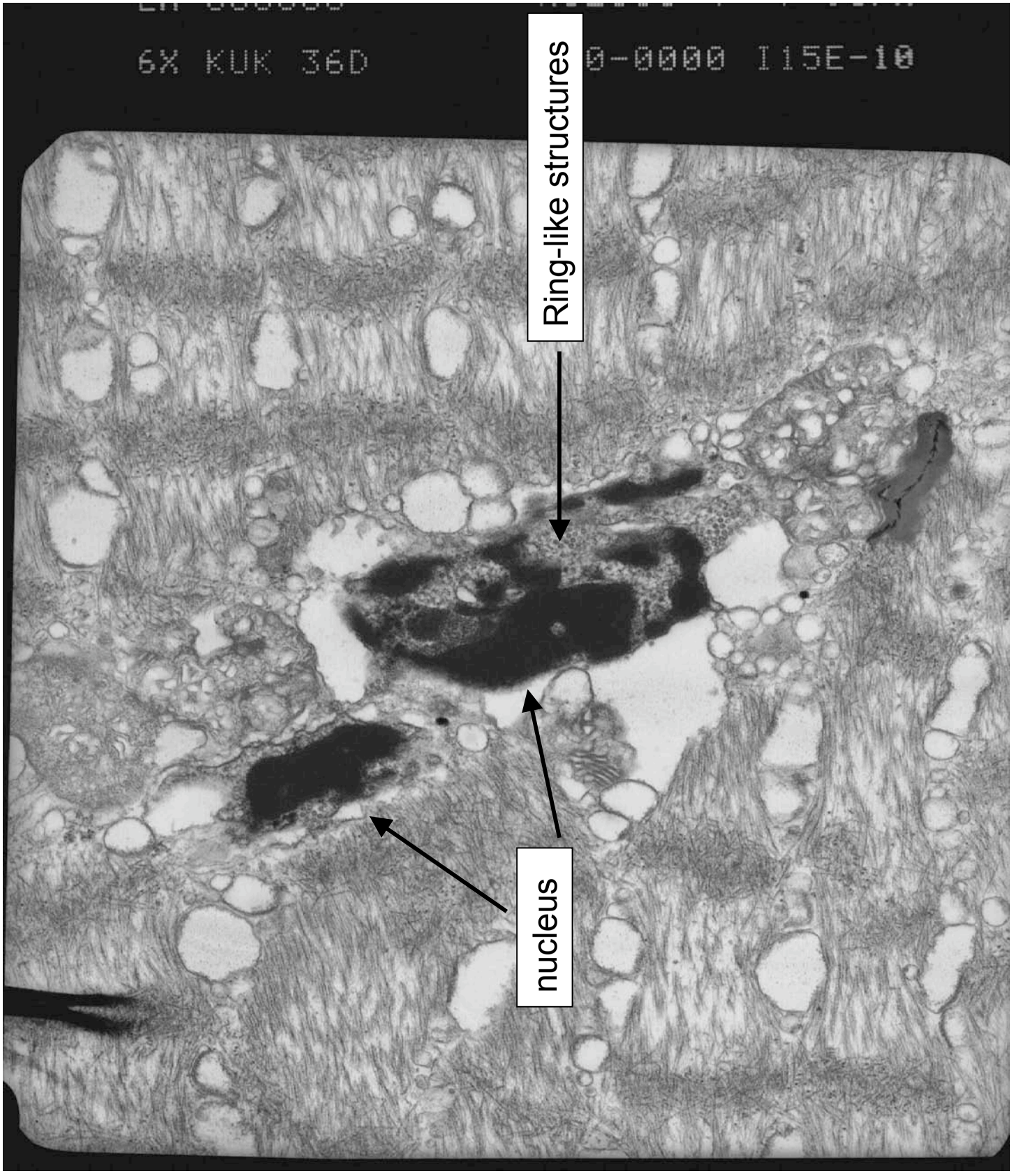
6x kuk 3 days
20.000 x



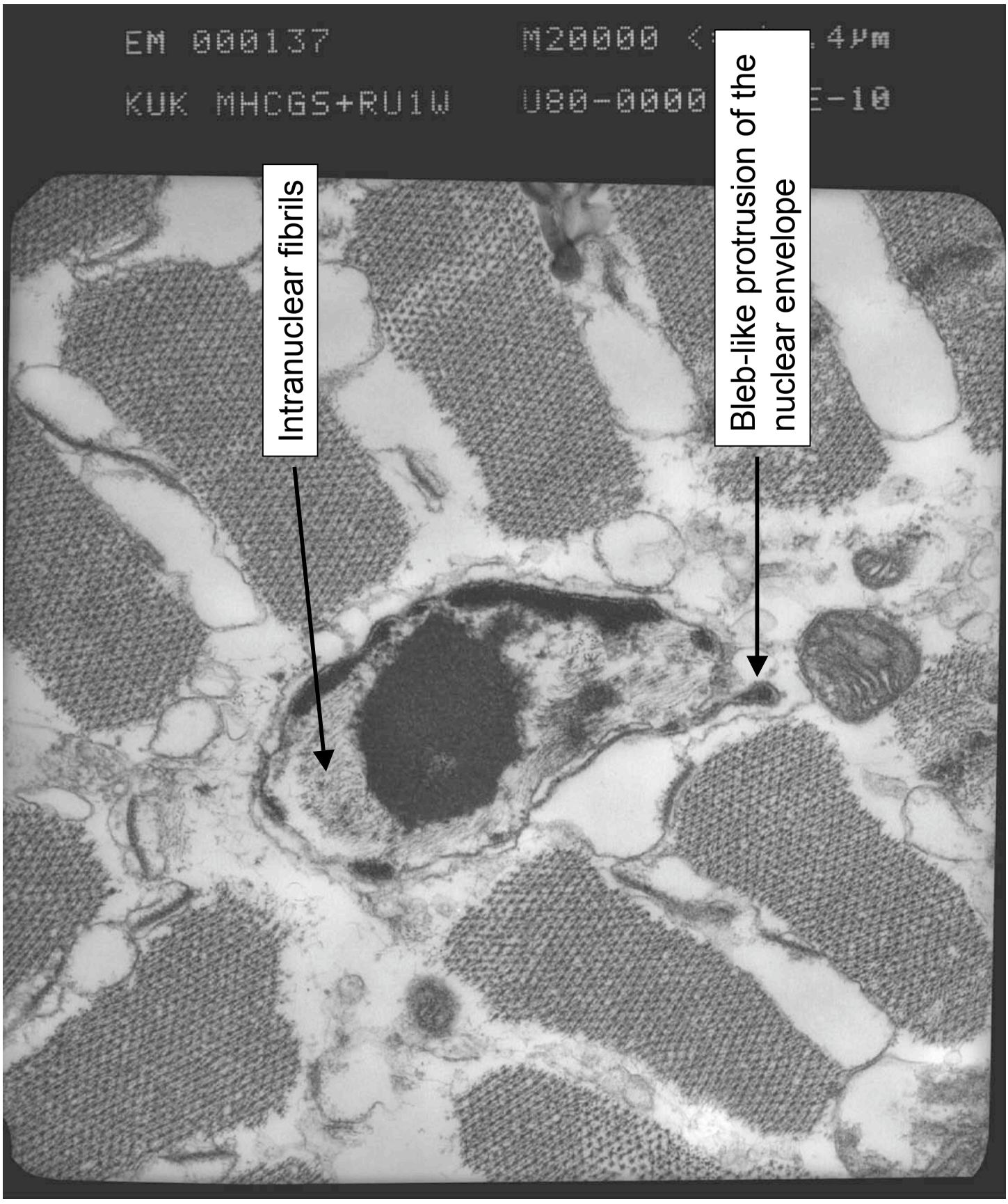
6x kuk 30 days
12.000 x



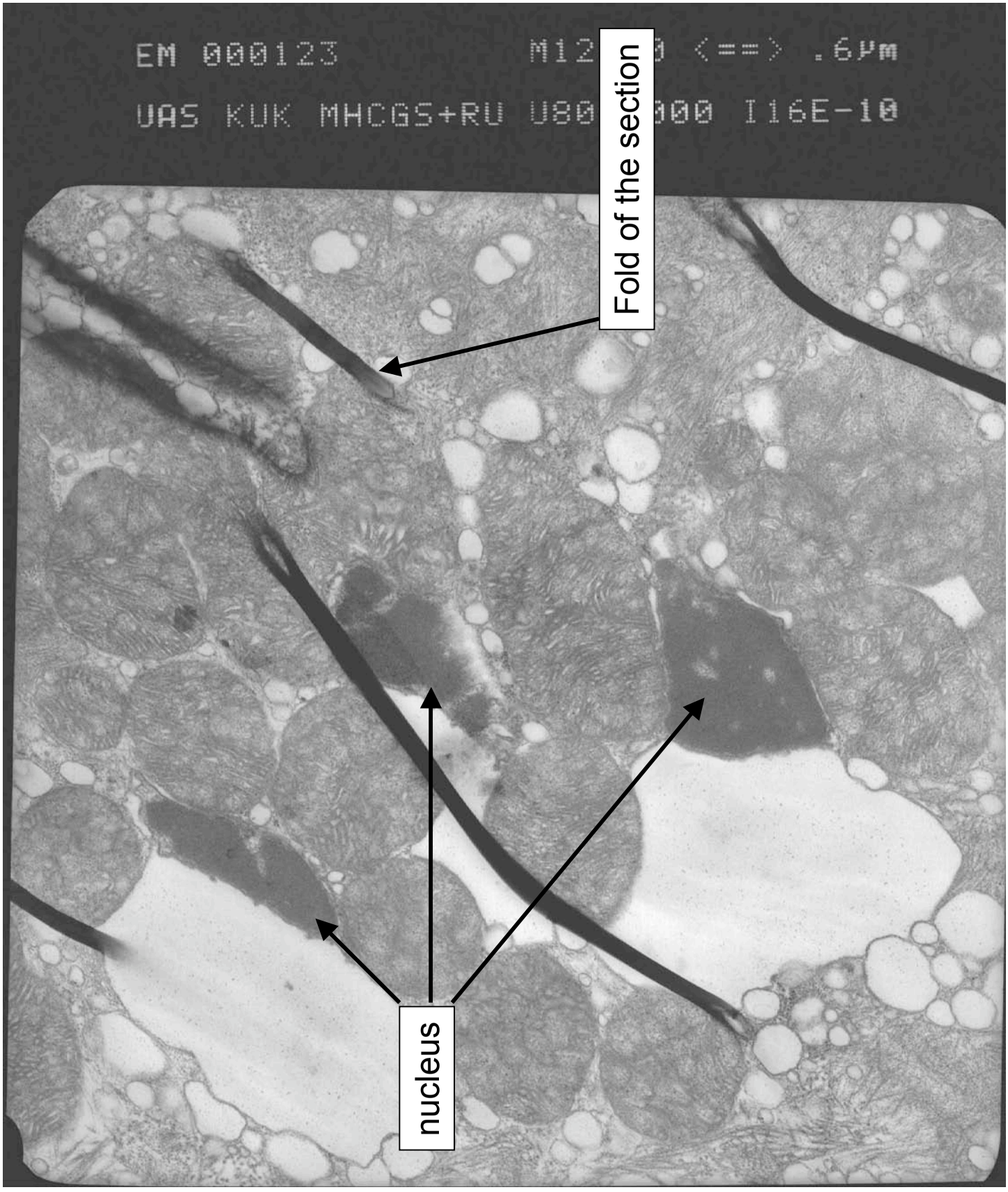
6x kuk 36 days
20.000 x



UASkuk/GSMHC induced with RU486; 3 days
20.000 x

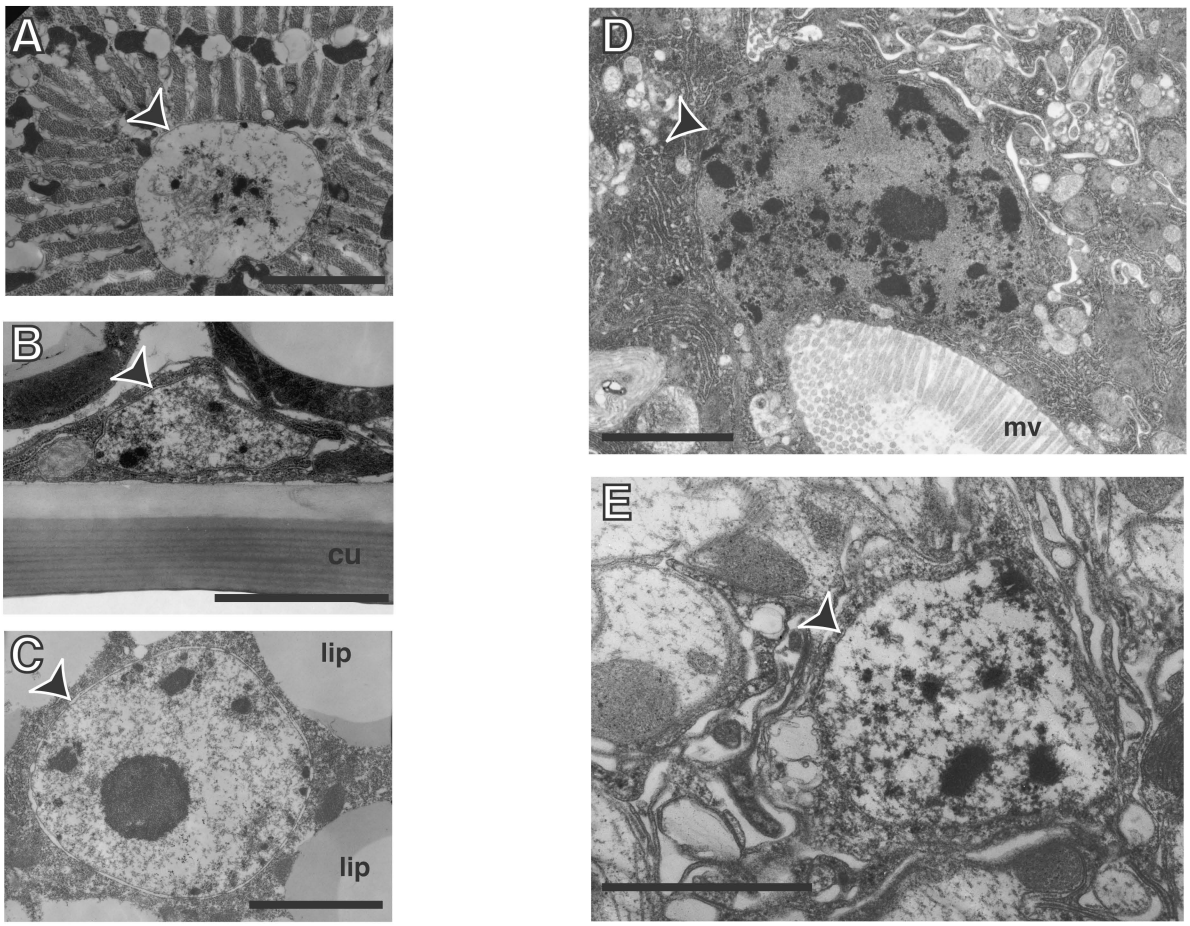


UASkuk/GSMHC induced with RU486; 29 days
12.000 x

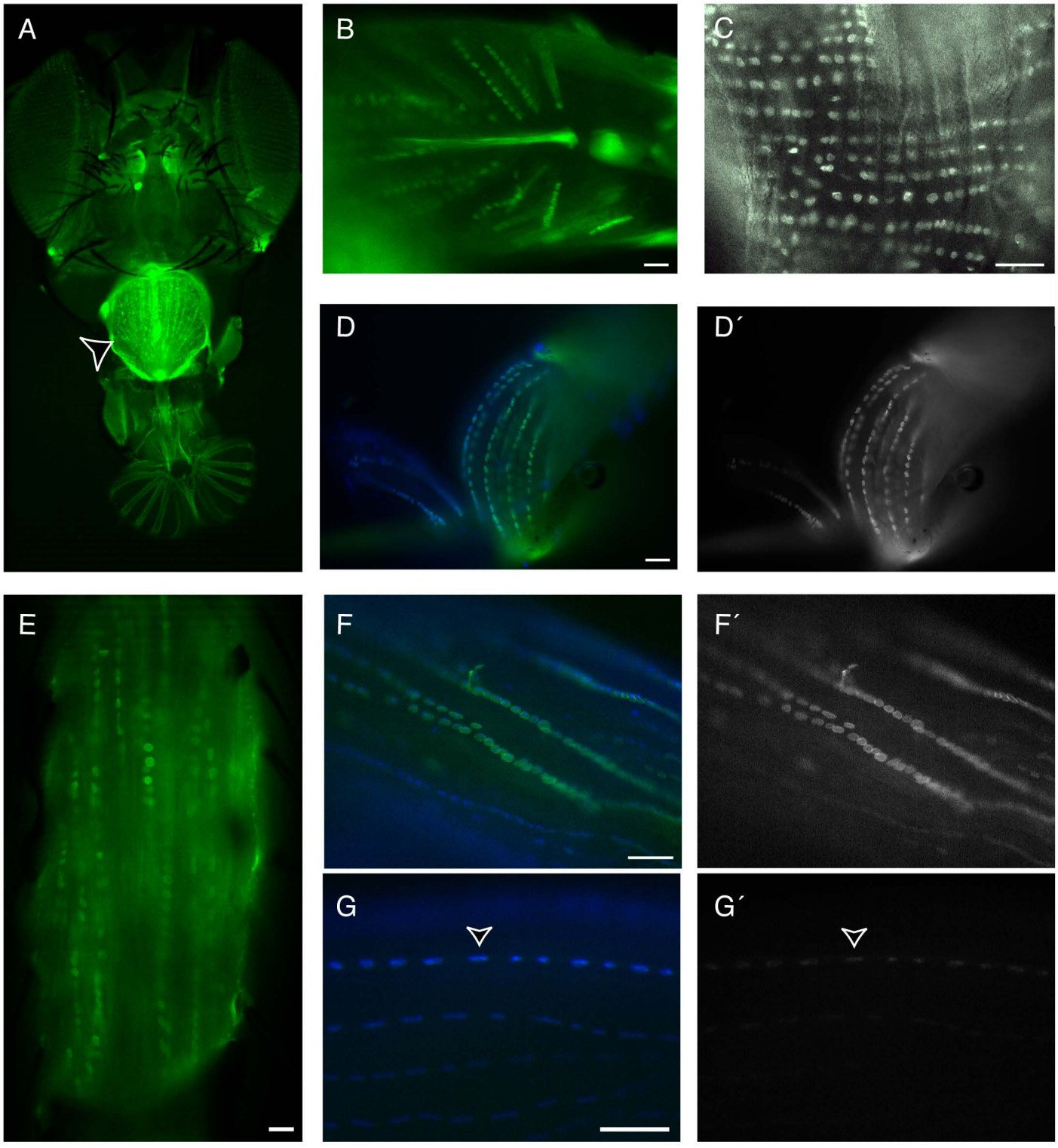


UASlaminDmO/GSMHC induced with RU486; 3 days
12.000 x

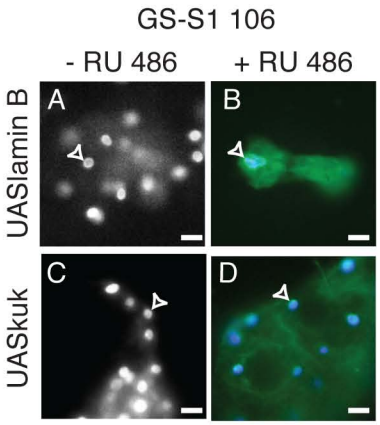
Supplementary Figure 2

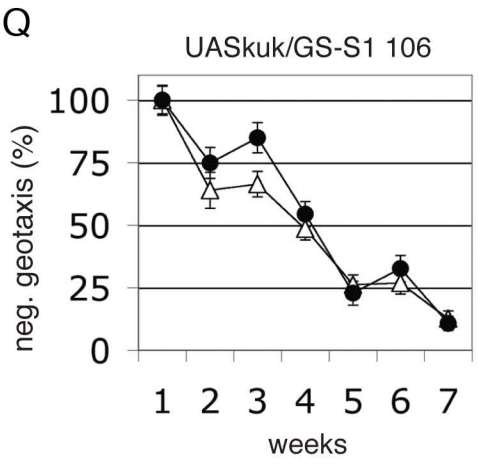


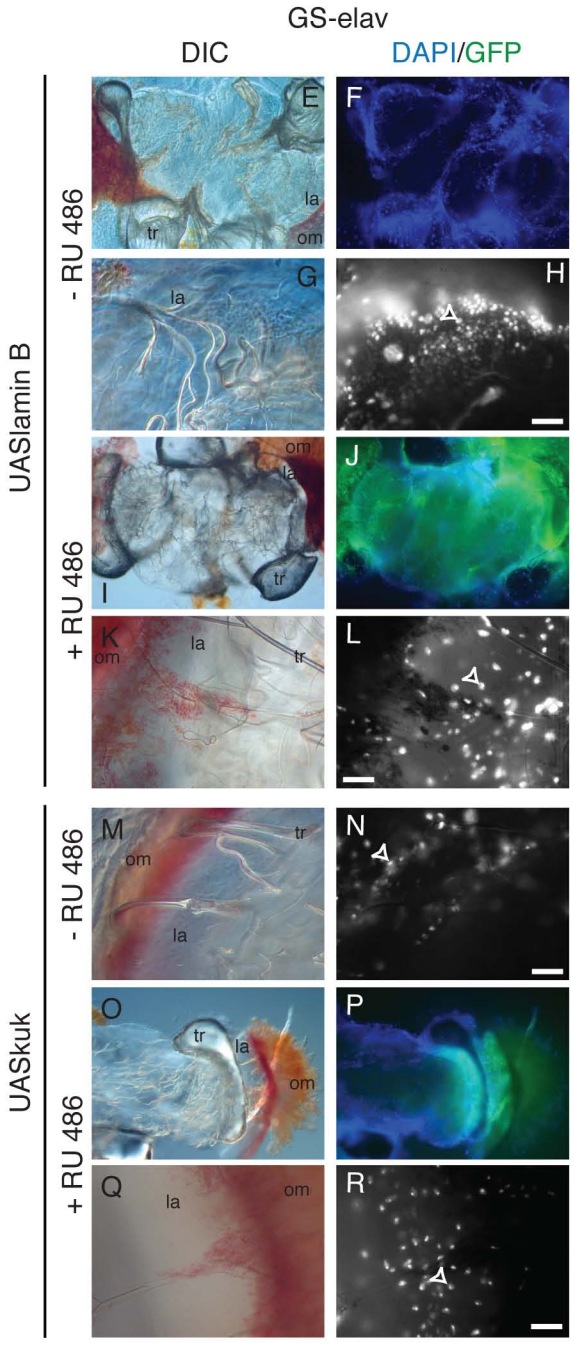
Supplemental Figure 3



Supplemental Figure 4

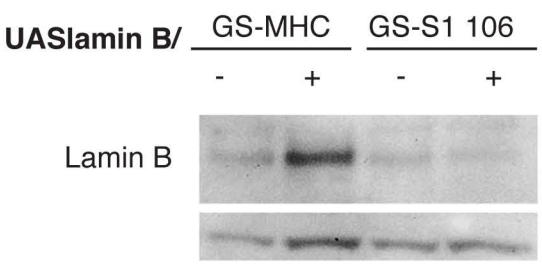




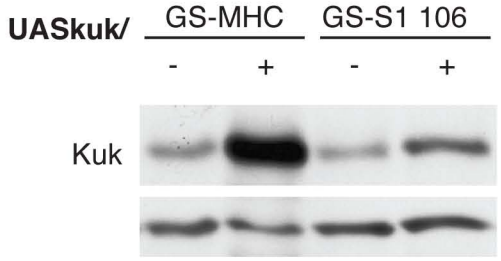


Supplemental Figure 5

A



B



GS-MHC/UASlamin with RU486

I

Replicate 1	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 1	49	09.Apr	0	0	49	100	0
Replicate 1	49	11.Apr	0	0	49	100	0
Replicate 1	49	13.Apr	0	0	49	100	0
Replicate 1	49	16.Apr	0	0	49	100	0
Replicate 1	49	18.Apr	0	0	49	100	0
Replicate 1	49	20.Apr	1	1	48	97,95918367	0
Replicate 1	49	23.Apr	0	1	48	97,95918367	0
Replicate 1	49	25.Apr	0	1	48	97,95918367	0
Replicate 1	49	27.Apr	0	1	48	97,95918367	0
Replicate 1	49	29.Apr	1	2	47	95,91836735	0
Replicate 1	49	02.Mai	0	2	47	95,91836735	0
Replicate 1	49	05.Mai	6	8	41	83,67346939	0
Replicate 1	49	08.Mai	6	14	35	71,42857143	0
Replicate 1	49	10.Mai	2	16	33	67,34693878	0
Replicate 1	49	12.Mai	5	21	28	57,14285714	0
Replicate 1	49	15.Mai	10	31	18	36,73469388	0
Replicate 1	49	17.Mai	2	33	16	32,65306122	0
Replicate 1	49	19.Mai	1	34	15	30,6122449	0
Replicate 1	49	22.Mai	4	38	11	22,44897959	0
Replicate 1	49	23.Mai	1	39	10	20,40816327	0
Replicate 1	49	26.Mai	3	42	7	14,28571429	0
Replicate 1	49	29.Mai	2	44	5	10,20408163	0
Replicate 1	49	30.Mai	0	44	5	10,20408163	0
Replicate 1	49	02.Jun	1	45	4	8,163265306	0
Replicate 1	49	05.Jun	3	48	1	2,040816327	0
Replicate 1	49	07.Jun	0	48	1	2,040816327	0
Replicate 1	49	09.Jun	0	48	1	2,040816327	0
Replicate 1	49	12.Jun	1	49	0	0	0

II

Replicate 2	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 2	37	02.Apr	0	0	37	100	0
Replicate 2	37	05.Apr	2	2	35	94,59459459	0
Replicate 2	37	06.Apr	1	1	36	97,2972973	0
Replicate 2	37	09.Apr	3	0	37	100	0
Replicate 2	37	11.Apr	0	0	37	100	0
Replicate 2	37	13.Apr	0	0	37	100	0
Replicate 2	37	16.Apr	0	0	37	100	0
Replicate 2	37	18.Apr	0	0	37	100	0
Replicate 2	37	20.Apr	2	2	35	94,59459459	0
Replicate 2	37	23.Apr	1	3	34	91,89189189	0
Replicate 2	37	25.Apr	0	3	34	91,89189189	0
Replicate 2	37	27.Apr	2	5	32	86,48648649	0
Replicate 2	37	29.Apr	0	5	32	86,48648649	0
Replicate 2	37	02.Mai	4	9	28	75,67567568	0
Replicate 2	37	05.Mai	4	13	24	64,86486486	0
Replicate 2	37	08.Mai	6	19	18	48,64864865	0
Replicate 2	37	10.Mai	6	25	12	32,43243243	0
Replicate 2	37	12.Mai	0	25	12	32,43243243	0
Replicate 2	37	15.Mai	0	25	12	32,43243243	0
Replicate 2	37	17.Mai	0	25	12	32,43243243	0
Replicate 2	37	19.Mai	2	27	10	27,02702703	0
Replicate 2	37	22.Mai	2	29	8	21,62162162	0
Replicate 2	37	23.Mai	1	30	7	18,91891892	0
Replicate 2	37	26.Mai	1	31	6	16,21621622	0

III

Replicate 3	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 3	73	13.Apr	0	0	73	100		0
Replicate 3	73	16.Apr	0	0	73	100		0
Replicate 3	73	18.Apr	0	0	73	100		0
Replicate 3	73	20.Apr	1	1	72	98,63013699		0
Replicate 3	73	23.Apr	0	1	72	98,63013699		0
Replicate 3	73	25.Apr	0	1	72	98,63013699		0
Replicate 3	73	27.Apr	0	1	72	98,63013699		0
Replicate 3	73	29.Apr	0	1	72	98,63013699		0
Replicate 3	73	02.Mai	9	10	63	86,30136986		0
Replicate 3	73	05.Mai	1	11	62	84,93150685		0
Replicate 3	73	08.Mai	0	11	62	84,93150685		0
Replicate 3	73	10.Mai	5	16	57	78,08219178		0
Replicate 3	73	12.Mai	8	24	49	67,12328767		0
Replicate 3	73	15.Mai	3	27	46	63,01369863		0
Replicate 3	73	17.Mai	1	28	45	61,64383562		0
Replicate 3	73	19.Mai	2	30	43	58,90410959		0
Replicate 3	73	22.Mai	3	33	40	54,79452055		0
Replicate 3	73	23.Mai	3	36	37	50,68493151		0
Replicate 3	73	26.Mai	10	46	27	36,98630137		0
Replicate 3	73	29.Mai	6	52	21	28,76712329		0
Replicate 3	73	30.Mai	1	53	20	27,39726027		0
Replicate 3	73	02.Jun	6	59	14	19,17808219		0
Replicate 3	73	05.Jun	6	65	8	10,95890411		0
Replicate 3	73	07.Jun	2	67	6	8,219178082		0
Replicate 3	73	09.Jun	5	72	1	1,369863014		0
Replicate 3	73	12.Jun	1	73	0	0		0

IV

Replicate 4	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 4	61	30.Okt	0	0	61	100		0
Replicate 4	61	03.Nov	0	0	61	100		0
Replicate 4	61	13.Nov	0	3	58	95,08196721		0
Replicate 4	61	15.Nov	0	3	58	95,08196721		0
Replicate 4	61	17.Nov	2	5	56	91,80327869		0
Replicate 4	61	20.Nov	3	8	53	86,8852459		0
Replicate 4	61	22.Nov	2	10	51	83,60655738		0
Replicate 4	61	24.Nov	6	16	45	73,7704918		0
Replicate 4	61	27.Nov	8	32	29	47,54098361		0
Replicate 4	61	29.Nov	9	41	20	32,78688525		0
Replicate 4	61	01.Dez	9	50	11	18,03278689		0
Replicate 4	61	04.Dez	2	52	9	14,75409836		0
Replicate 4	61	06.Dez	0	52	9	14,75409836		0
Replicate 4	61	08.Dez	4	56	5	8,196721311		0
Replicate 4	61	11.Dez	2	58	3	4,918032787		0
Replicate 4	61	13.Dez	4	59	2	3,278688525		0
Replicate 4	61	15.Dez	1	60	1	1,639344262		0
Replicate 4	61	18.Dez	1	61	0	0		0

GS-MHC/UASlamin without RU486

I

Replicate 1	N		Age-interv	dx	totaled nu	Nx	% Survivo	cx
Replicate 1		16	04.Apr	0	0	16	100	0
Replicate 1		16	06.Apr	0	0	16	100	0
Replicate 1		16	07.Apr	0	0	16	100	0
Replicate 1		16	10.Apr	0	0	16	100	0
Replicate 1		16	12.Apr	0	0	16	100	0
Replicate 1		16	13.Apr	0	0	16	100	0
Replicate 1		16	16.Apr	0	0	16	100	0
Replicate 1		16	18.Apr	0	0	16	100	0
Replicate 1		16	20.Apr	1	1	15	93,75	0
Replicate 1		16	23.Apr	0	1	15	93,75	0
Replicate 1		16	25.Apr	0	1	15	93,75	0
Replicate 1		16	27.Apr	0	1	15	93,75	0
Replicate 1		16	29.Apr	0	1	15	93,75	0
Replicate 1		16	02.Mai	0	1	15	93,75	0
Replicate 1		16	05.Mai	0	1	15	93,75	0
Replicate 1		16	08.Mai	1	2	14	87,5	0
Replicate 1		16	10.Mai	2	4	12	75	0
Replicate 1		16	12.Mai	1	5	11	68,75	0
Replicate 1		16	15.Mai	1	6	10	62,5	0
Replicate 1		16	17.Mai	1	7	9	56,25	0
Replicate 1		16	19.Mai	0	7	9	56,25	0
Replicate 1		16	22.Mai	1	8	8	50	0
Replicate 1		16	23.Mai	0	8	8	50	0
Replicate 1		16	26.Mai	0	8	8	50	0
Replicate 1		16	29.Mai	1	9	7	43,75	0
Replicate 1		16	30.Mai	0	9	7	43,75	0
Replicate 1		16	02.Jun	5	14	2	12,5	0
Replicate 1		16	05.Jun	1	15	1	6,25	0
Replicate 1		16	07.Jun	0	15	1	6,25	0
Replicate 1		16	09.Jun	1	16	0	0	0

II

Replicate 2	N		Age-interv	dx	totaled nu	Nx	% Survivo	cx
Replicate 2		42	10.Apr	0	0	42	100	0
Replicate 2		42	12.Apr	1	1	41	97,61905	0
Replicate 2		42	13.Apr	0	1	41	97,61905	0
Replicate 2		42	16.Apr	0	1	41	97,61905	0
Replicate 2		42	18.Apr	0	1	41	97,61905	0
Replicate 2		42	20.Apr	0	1	41	97,61905	0
Replicate 2		42	23.Apr	0	1	41	97,61905	0
Replicate 2		42	25.Apr	0	1	41	97,61905	0
Replicate 2		42	27.Apr	0	1	41	97,61905	0
Replicate 2		42	29.Apr	0	1	41	97,61905	0
Replicate 2		42	02.Mai	0	1	41	97,61905	0
Replicate 2		42	05.Mai	1	2	40	95,2381	0
Replicate 2		42	08.Mai	1	3	39	92,85714	0
Replicate 2		42	10.Mai	1	4	38	90,47619	0
Replicate 2		42	12.Mai	4	8	34	80,95238	0
Replicate 2		42	15.Mai	1	9	33	78,57143	0
Replicate 2		42	17.Mai	0	9	33	78,57143	0
Replicate 2		42	19.Mai	2	11	31	73,80952	0
Replicate 2		42	22.Mai	1	12	30	71,42857	0
Replicate 2		42	23.Mai	5	17	25	59,52381	0
Replicate 2		42	26.Mai	3	20	22	52,38095	0
Replicate 2		42	29.Mai	1	21	21	50	0
Replicate 2		42	30.Mai	1	22	20	47,61905	0
Replicate 2		42	02.Jun	9	31	11	26,19048	0
Replicate 2		42	05.Jun	3	34	8	19,04762	0
Replicate 2		42	07.Jun	2	36	6	14,28571	0
Replicate 2		42	09.Jun	6	42	0	0	0

III

Replicate 3	**N**		**Age-interv dx**		**totaled nu Nx**		**% Survivo cx**	
Replicate 3		62	12.Apr	0	0	62	100	0
Replicate 3		62	13.Apr	1	1	61	98,3871	0
Replicate 3		62	16.Apr	0	1	61	98,3871	0
Replicate 3		62	18.Apr	0	1	61	98,3871	0
Replicate 3		62	20.Apr	0	1	61	98,3871	0
Replicate 3		62	23.Apr	1	2	60	96,77419	0
Replicate 3		62	25.Apr	0	2	60	96,77419	0
Replicate 3		62	27.Apr	0	2	60	96,77419	0
Replicate 3		62	29.Apr	0	2	60	96,77419	0
Replicate 3		62	02.Mai	0	2	60	96,77419	0
Replicate 3		62	05.Mai	2	4	58	93,54839	0
Replicate 3		62	08.Mai	1	5	57	91,93548	0
Replicate 3		62	10.Mai	0	5	57	91,93548	0
Replicate 3		62	12.Mai	2	7	55	88,70968	0
Replicate 3		62	15.Mai	1	8	54	87,09677	0
Replicate 3		62	17.Mai	8	16	46	74,19355	0
Replicate 3		62	19.Mai	1	17	45	72,58065	0
Replicate 3		62	22.Mai	7	24	38	61,29032	0
Replicate 3		62	23.Mai	6	30	32	51,6129	0
Replicate 3		62	26.Mai	0	30	32	51,6129	0
Replicate 3		62	29.Mai	7	37	25	40,32258	0
Replicate 3		62	30.Mai	3	40	22	35,48387	0
Replicate 3		62	02.Jun	0	40	22	35,48387	0
Replicate 3		62	05.Jun	1	41	21	33,87097	0
Replicate 3		62	07.Jun	7	48	14	22,58065	0
Replicate 3		62	09.Jun	9	57	5	8,064516	0
Replicate 3		62	09.Jun	2	59	3	4,83871	0
Replicate 3		62	12.Jun	3	62	0	0	0

GS-elav/UASlamin without RU486

I

Replicate 1	total number	Datum	Tote Männch	Dead flies	Survivor	%Survivor	cx
Replicate 1	97	03.Nov	0	0	97	100	0
Replicate 1	97	13.Nov	6	6	91	93,814433	0
Replicate 1	97	15.Nov	5	11	86	88,6597938	0
Replicate 1	97	17.Nov	1	12	85	87,628866	0
Replicate 1	97	20.Nov	3	15	82	84,5360825	0
Replicate 1	97	22.Nov	0	15	82	84,5360825	0
Replicate 1	97	24.Nov	0	15	82	84,5360825	0
Replicate 1	97	27.Nov	0	15	82	84,5360825	0
Replicate 1	97	29.Nov	1	16	81	83,5051546	0
Replicate 1	97	01.Dez	1	17	80	82,4742268	0
Replicate 1	97	04.Dez	4	21	76	78,3505155	0
Replicate 1	97	06.Dez	1	22	75	77,3195876	0
Replicate 1	97	08.Dez	4	26	71	73,1958763	0
Replicate 1	97	11.Dez	4	30	67	69,0721649	0
Replicate 1	97	13.Dez	5	35	62	63,9175258	0
Replicate 1	97	15.Dez	6	41	56	57,7319588	0
Replicate 1	97	18.Dez	3	44	53	54,6391753	0
Replicate 1	97	20.Dez	3	47	50	51,5463918	0
Replicate 1	97	22.Dez	3	50	47	48,4536082	0
Replicate 1	97	25.Dez	5	55	42	43,2989691	0
Replicate 1	97	27.Dez	6	61	36	37,1134021	0
Replicate 1	97	29.Dez	3	64	33	34,0206186	0
Replicate 1	97	01.Jan	2	66	31	31,9587629	0
Replicate 1	97	03.Jan	1	67	30	30,9278351	0
Replicate 1	97	05.Jan	7	74	23	23,7113402	0
Replicate 1	97	08.Jan	16	90	7	7,21649485	0
Replicate 1	97	10.Jan	1	91	6	6,18556701	0
Replicate 1	97	12.Jan	5	96	1	1,03092784	0
Replicate 1	97	15.Jan	1	97	0	0	0

II

Replicate 2	total number	Datum	Tote Männch	Dead flies	Survivor	%Survivor	cx
Replicate 2	107	04.Dez	0	0	107	100	0
Replicate 2	107	06.Dez	0	0	107	100	0
Replicate 2	107	08.Dez	0	0	107	100	0
Replicate 2	107	11.Dez	2	2	105	98,1308411	0
Replicate 2	107	13.Dez	0	2	105	98,1308411	0
Replicate 2	107	15.Dez	1	3	104	97,1962617	0
Replicate 2	107	18.Dez	1	4	103	96,2616822	0
Replicate 2	107	20.Dez	5	9	98	91,588785	0
Replicate 2	107	22.Dez	1	10	97	90,6542056	0
Replicate 2	107	25.Dez	0	10	97	90,6542056	0
Replicate 2	107	27.Dez	3	13	94	87,8504673	0
Replicate 2	107	29.Dez	3	16	91	85,046729	0
Replicate 2	107	01.Jan	0	16	91	85,046729	0
Replicate 2	107	03.Jan	1	17	90	84,1121495	0
Replicate 2	107	05.Jan	1	18	89	83,1775701	0
Replicate 2	107	08.Jan	1	19	88	82,2429907	0
Replicate 2	107	10.Jan	0	19	88	82,2429907	0
Replicate 2	107	12.Jan	2	21	86	80,3738318	0
Replicate 2	107	15.Jan	1	22	85	79,4392523	0
Replicate 2	107	17.Jan	4	26	81	75,7009346	0
Replicate 2	107	19.Jan	6	32	75	70,0934579	0
Replicate 2	107	22.Jan	10	42	65	60,7476636	0
Replicate 2	107	24.Jan	4	46	61	57,0093458	0
Replicate 2	107	26.Jan	3	49	58	54,2056075	0
Replicate 2	107	29.Jan	21	70	37	34,5794393	0
Replicate 2	107	31.Jan	4	74	33	30,8411215	0
Replicate 2	107	02.Feb	3	77	30	28,0373832	0
Replicate 2	107	05.Feb	10	87	20	18,6915888	0
Replicate 2	107	07.Feb	6	93	14	13,0841121	0
Replicate 2	107	09.Feb	0	93	14	13,0841121	0
Replicate 2	107	12.Feb	9	102	5	4,6728972	0
Replicate 2	107	15.Feb	4	106	1	0,93457944	0
Replicate 2	107	16.Feb	1	107	0	0	0

III

Replicate 3	**total number**	**Datum**	**Tote Männch**	**Dead flies**	**Survivor**	**%Survivor**	**cx**
Replicate 3	217	04.Dez	0	0	217	100	0
Replicate 3	217	06.Dez	0	0	217	100	0
Replicate 3	217	08.Dez	0	0	217	100	0
Replicate 3	217	11.Dez	0	0	217	100	0
Replicate 3	217	13.Dez	5	5	212	97,6958525	0
Replicate 3	217	15.Dez	2	7	210	96,7741935	0
Replicate 3	217	18.Dez	0	7	210	96,7741935	0
Replicate 3	217	20.Dez	2	9	208	95,8525346	0
Replicate 3	217	22.Dez	4	13	204	94,0092166	0
Replicate 3	217	25.Dez	17	30	187	86,1751152	0
Replicate 3	217	27.Dez	20	50	167	76,9585253	0
Replicate 3	217	29.Dez	0	50	167	76,9585253	0
Replicate 3	217	01.Jan	1	51	166	76,4976959	0
Replicate 3	217	03.Jan	1	52	165	76,0368664	0
Replicate 3	217	05.Jan	6	58	159	73,2718894	0
Replicate 3	217	08.Jan	19	77	140	64,516129	0
Replicate 3	217	10.Jan	8	85	132	60,8294931	0
Replicate 3	217	12.Jan	10	95	122	56,2211982	0
Replicate 3	217	15.Jan	9	104	113	52,0737327	0
Replicate 3	217	17.Jan	5	109	108	49,7695853	0
Replicate 3	217	19.Jan	12	121	96	44,2396313	0
Replicate 3	217	22.Jan	16	137	80	36,8663594	0
Replicate 3	217	24.Jan	17	154	63	29,0322581	0
Replicate 3	217	26.Jan	5	159	58	26,7281106	0
Replicate 3	217	29.Jan	18	177	40	18,4331797	0
Replicate 3	217	31.Jan	8	185	32	14,7465438	0
Replicate 3	217	02.Feb	4	189	28	12,9032258	0
Replicate 3	217	05.Feb	4	193	24	11,0599078	0
Replicate 3	217	07.Feb	7	200	17	7,83410138	0
Replicate 3	217	09.Feb	3	203	14	6,4516129	0
Replicate 3	217	12.Feb	10	213	4	1,84331797	0
Replicate 3	217	15.Feb	1	214	3	1,38248848	0
Replicate 3	217	16.Feb	3	217	0	0	0

GS-elav/UASlamin with RU486

I

Replicate 1	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 1	155	04.Dez	0	0	155	100	0
Replicate 1	155	06.Dez	2	2	153	98,70967742	0
Replicate 1	155	08.Dez	4	6	149	96,12903226	0
Replicate 1	155	11.Dez	6	12	143	92,25806452	0
Replicate 1	155	13.Dez	2	14	141	90,96774194	0
Replicate 1	155	15.Dez	0	14	141	90,96774194	0
Replicate 1	155	18.Dez	5	19	136	87,74193548	0
Replicate 1	155	20.Dez	2	21	134	86,4516129	0
Replicate 1	155	22.Dez	4	25	130	83,87096774	0
Replicate 1	155	25.Dez	8	33	122	78,70967742	0
Replicate 1	155	27.Dez	13	46	109	70,32258065	0
Replicate 1	155	29.Dez	4	50	105	67,74193548	0
Replicate 1	155	01.Jan	3	53	102	65,80645161	0
Replicate 1	155	03.Jan	1	54	101	65,16129032	0
Replicate 1	155	05.Jan	1	55	100	64,51612903	0
Replicate 1	155	08.Jan	16	71	84	54,19354839	0
Replicate 1	155	10.Jan	2	73	82	52,90322581	0
Replicate 1	155	12.Jan	18	91	64	41,29032258	0
Replicate 1	155	15.Jan	9	100	55	35,48387097	0
Replicate 1	155	17.Jan	11	111	44	28,38709677	0
Replicate 1	155	19.Jan	7	118	37	23,87096774	0
Replicate 1	155	22.Jan	10	128	27	17,41935484	0
Replicate 1	155	24.Jan	2	130	25	16,12903226	0
Replicate 1	155	26.Jan	5	135	20	12,90322581	0
Replicate 1	155	29.Jan	20	155	0	0	0

II

Replicate 2	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 2	150	04.Dez	0	0	150	100	0
Replicate 2	150	06.Dez	2	2	148	98,66666667	0
Replicate 2	150	08.Dez	1	3	147	98	0
Replicate 2	150	11.Dez	3	6	144	96	0
Replicate 2	150	13.Dez	0	6	144	96	0
Replicate 2	150	15.Dez	2	8	142	94,66666667	0
Replicate 2	150	18.Dez	3	11	139	92,66666667	0
Replicate 2	150	20.Dez	0	11	139	92,66666667	0
Replicate 2	150	22.Dez	0	11	139	92,66666667	0
Replicate 2	150	25.Dez	2	13	137	91,33333333	0
Replicate 2	150	27.Dez	5	18	132	88	0
Replicate 2	150	29.Dez	3	21	129	86	0
Replicate 2	150	01.Jan	6	27	123	82	0
Replicate 2	150	03.Jan	1	28	122	81,33333333	0
Replicate 2	150	05.Jan	3	31	119	79,33333333	0
Replicate 2	150	08.Jan	11	42	108	72	0
Replicate 2	150	10.Jan	13	55	95	63,33333333	0
Replicate 2	150	12.Jan	7	62	88	58,66666667	0
Replicate 2	150	15.Jan	9	71	79	52,66666667	0
Replicate 2	150	17.Jan	6	77	73	48,66666667	0
Replicate 2	150	19.Jan	5	82	68	45,33333333	0
Replicate 2	150	22.Jan	10	92	58	38,66666667	0
Replicate 2	150	24.Jan	5	97	53	35,33333333	0
Replicate 2	150	26.Jan	3	100	50	33,33333333	0
Replicate 2	150	29.Jan	8	108	42	28	0
Replicate 2	150	31.Jan	3	111	39	26	0
Replicate 2	150	02.Feb	15	126	24	16	0
Replicate 2	150	05.Feb	8	134	16	10,66666667	0
Replicate 2	150	07.Feb	10	144	6	4	0
Replicate 2	150	09.Feb	4	148	2	1,333333333	0
Replicate 2	150	12.Feb	2	150	0	0	0

III

Replicate 3	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 3	136	15.Dez	0	0	136	100	0	
Replicate 3	136	18.Dez	0	0	136	100	0	
Replicate 3	136	20.Dez	0	0	136	100	0	
Replicate 3	136	22.Dez	2	2	134	98,52941176	0	
Replicate 3	136	25.Dez	0	2	134	98,52941176	0	
Replicate 3	136	27.Dez	0	2	134	98,52941176	0	
Replicate 3	136	29.Dez	6	8	128	94,11764706	0	
Replicate 3	136	01.Jan	14	22	114	83,82352941	0	
Replicate 3	136	03.Jan	3	25	111	81,61764706	0	
Replicate 3	136	05.Jan	2	27	109	80,14705882	0	
Replicate 3	136	08.Jan	10	37	99	72,79411765	0	
Replicate 3	136	10.Jan	5	42	94	69,11764706	0	
Replicate 3	136	12.Jan	3	45	91	66,91176471	0	
Replicate 3	136	15.Jan	12	57	79	58,08823529	0	
Replicate 3	136	17.Jan	4	61	75	55,14705882	0	
Replicate 3	136	19.Jan	7	68	68	50	0	
Replicate 3	136	22.Jan	18	86	50	36,76470588	0	
Replicate 3	136	24.Jan	18	104	32	23,52941176	0	
Replicate 3	136	26.Jan	2	106	30	22,05882353	0	
Replicate 3	136	29.Jan	17	123	13	9,558823529	0	
Replicate 3	136	31.Jan	10	133	3	2,205882353	0	
Replicate 3	136	02.Feb	3	136	0	0	0	

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I

Replicate 1	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 1	55	24.Nov	0	0	55	100	0
Replicate 1	55	27.Nov	0	0	55	100	0
Replicate 1	55	29.Nov	0	0	55	100	0
Replicate 1	55	01.Dez	3	3	52	94,5454545	0
Replicate 1	55	04.Dez	0	3	52	94,5454545	0
Replicate 1	55	06.Dez	0	3	52	94,5454545	0
Replicate 1	55	08.Dez	3	6	49	89,0909091	0
Replicate 1	55	11.Dez	1	7	48	87,2727273	0
Replicate 1	55	13.Dez	2	9	46	83,6363636	0
Replicate 1	55	15.Dez	8	17	38	69,0909091	0
Replicate 1	55	18.Dez	5	22	33	60	0
Replicate 1	55	20.Dez	3	25	30	54,5454545	0
Replicate 1	55	22.Dez	3	28	27	49,0909091	0
Replicate 1	55	25.Dez	0	28	27	49,0909091	0
Replicate 1	55	27.Dez	2	30	25	45,4545455	0
Replicate 1	55	29.Dez	0	30	25	45,4545455	0
Replicate 1	55	01.Jan	1	31	24	43,6363636	0
Replicate 1	55	03.Jan	1	32	23	41,8181818	0
Replicate 1	55	05.Jan	2	34	21	38,1818182	0
Replicate 1	55	08.Jan	1	35	20	36,3636364	0
Replicate 1	55	10.Jan	0	35	20	36,3636364	0
Replicate 1	55	12.Jan	0	35	20	36,3636364	0
Replicate 1	55	15.Jan	2	37	18	32,7272727	0
Replicate 1	55	17.Jan	2	39	16	29,0909091	0
Replicate 1	55	19.Jan	0	39	16	29,0909091	0
Replicate 1	55	22.Jan	2	41	14	25,4545455	0
Replicate 1	55	24.Jan	1	42	13	23,6363636	0
Replicate 1	55	26.Jan	4	46	9	16,3636364	0
Replicate 1	55	29.Jan	0	46	9	16,3636364	0
Replicate 1	55	31.Jan	0	46	9	16,3636364	0
Replicate 1	55	02.Feb	5	51	4	7,27272727	0
Replicate 1	55	05.Feb	2	53	2	3,63636364	0
Replicate 1	55	07.Feb	0	53	2	3,63636364	0
Replicate 1	55	09.Feb	2	55	0	0	0

II

Replicate 2	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 2	107	27.Nov	0	0	107	100	0
Replicate 2	107	29.Nov	0	0	107	100	0
Replicate 2	107	01.Dez	3	3	104	97,1962617	0
Replicate 2	107	04.Dez	2	5	102	95,3271028	0
Replicate 2	107	06.Dez	0	5	102	95,3271028	0
Replicate 2	107	08.Dez	2	7	100	93,4579439	0
Replicate 2	107	11.Dez	0	7	100	93,4579439	0
Replicate 2	107	13.Dez	1	8	99	92,5233645	0
Replicate 2	107	15.Dez	8	16	91	85,046729	0
Replicate 2	107	18.Dez	6	22	85	79,4392523	0
Replicate 2	107	20.Dez	2	24	83	77,5700935	0
Replicate 2	107	22.Dez	2	26	81	75,7009346	0
Replicate 2	107	25.Dez	4	30	77	71,9626168	0
Replicate 2	107	27.Dez	1	31	76	71,0280374	0
Replicate 2	107	29.Dez	3	34	73	68,2242991	0
Replicate 2	107	01.Jan	1	35	72	67,2897196	0
Replicate 2	107	03.Jan	2	37	70	65,4205607	0
Replicate 2	107	05.Jan	0	37	70	65,4205607	0
Replicate 2	107	08.Jan	5	42	65	60,7476636	0
Replicate 2	107	10.Jan	3	45	62	57,9439252	0
Replicate 2	107	12.Jan	8	53	54	50,4672897	0
Replicate 2	107	15.Jan	5	58	49	45,7943925	0
Replicate 2	107	17.Jan	3	61	46	42,9906542	0
Replicate 2	107	19.Jan	1	62	45	42,0560748	0
Replicate 2	107	22.Jan	5	67	40	37,3831776	0
Replicate 2	107	24.Jan	3	70	37	34,5794393	0
Replicate 2	107	26.Jan	6	76	31	28,9719626	0
Replicate 2	107	29.Jan	15	91	16	14,953271	0
Replicate 2	107	31.Jan	4	95	12	11,2149533	0
Replicate 2	107	02.Feb	2	97	10	9,34579439	0
Replicate 2	107	05.Feb	4	101	6	5,60747664	0
Replicate 2	107	07.Feb	0	101	6	5,60747664	0
Replicate 2	107	09.Feb	6	107	0	0	0

III

Replicate 3	N		Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 3		115	29.Nov	0	0	115	100	0	
Replicate 3		115	01.Dez	1	1	114	99,1304348	0	
Replicate 3		115	04.Dez	1	2	113	98,2608696	0	
Replicate 3		115	06.Dez	0	2	113	98,2608696	0	
Replicate 3		115	08.Dez	1	3	112	97,3913043	0	
Replicate 3		115	11.Dez	0	3	112	97,3913043	0	
Replicate 3		115	13.Dez	1	4	111	96,5217391	0	
Replicate 3		115	15.Dez	1	5	110	95,6521739	0	
Replicate 3		115	18.Dez	6	11	104	90,4347826	0	
Replicate 3		115	20.Dez	2	13	102	88,6956522	0	
Replicate 3		115	22.Dez	3	16	99	86,0869565	0	
Replicate 3		115	25.Dez	0	16	99	86,0869565	0	
Replicate 3		115	27.Dez	5	21	94	81,7391304	0	
Replicate 3		115	29.Dez	2	23	92	80	0	
Replicate 3		115	01.Jan	2	25	90	78,2608696	0	
Replicate 3		115	03.Jan	0	25	90	78,2608696	0	
Replicate 3		115	05.Jan	0	25	90	78,2608696	0	
Replicate 3		115	08.Jan	3	28	87	75,6521739	0	
Replicate 3		115	10.Jan	1	29	86	74,7826087	0	
Replicate 3		115	12.Jan	5	34	81	70,4347826	0	
Replicate 3		115	15.Jan	13	47	68	59,1304348	0	
Replicate 3		115	17.Jan	2	49	66	57,3913043	0	
Replicate 3		115	19.Jan	2	51	64	55,6521739	0	
Replicate 3		115	22.Jan	19	70	45	39,1304348	0	
Replicate 3		115	24.Jan	7	77	38	33,0434783	0	
Replicate 3		115	26.Jan	5	82	33	28,6956522	0	
Replicate 3		115	29.Jan	16	98	17	14,7826087	0	
Replicate 3		115	31.Jan	6	104	11	9,56521739	0	
Replicate 3		115	02.Feb	3	107	8	6,95652174	0	
Replicate 3		115	05.Feb	6	113	2	1,73913043	0	
Replicate 3		115	07.Feb	0	113	2	1,73913043	0	
Replicate 3		115	09.Feb	2	115	0	0	0	

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		I					
Replicate 1	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 1	152	04.Dez	0	0	152	100	0
Replicate 1	152	06.Dez	6	6	146	96,05263158	0
Replicate 1	152	08.Dez	1	7	145	95,39473684	0
Replicate 1	152	11.Dez	0	7	145	95,39473684	0
Replicate 1	152	13.Dez	1	8	144	94,73684211	0
Replicate 1	152	15.Dez	0	8	144	94,73684211	0
Replicate 1	152	18.Dez	3	11	141	92,76315789	0
Replicate 1	152	20.Dez	3	14	138	90,78947368	0
Replicate 1	152	22.Dez	5	19	133	87,5	0
Replicate 1	152	25.Dez	27	46	106	69,73684211	0
Replicate 1	152	27.Dez	7	53	99	65,13157895	0
Replicate 1	152	29.Dez	29	82	70	46,05263158	0
Replicate 1	152	01.Jan	25	107	45	29,60526316	0
Replicate 1	152	03.Jan	20	127	25	16,44736842	0
Replicate 1	152	05.Jan	11	138	14	9,210526316	0
Replicate 1	152	08.Jan	7	145	7	4,605263158	0
Replicate 1	152	10.Jan	1	146	6	3,947368421	0
Replicate 1	152	12.Jan	0	146	6	3,947368421	0
Replicate 1	152	15.Jan	6	152	0	0	0

		II					
Replicate 2	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 2	141	04.Dez	0	0	141	100	0
Replicate 2	141	06.Dez	4	4	137	97,16312057	0
Replicate 2	141	08.Dez	1	5	136	96,45390071	0
Replicate 2	141	11.Dez	0	5	136	96,45390071	0
Replicate 2	141	13.Dez	0	5	136	96,45390071	0
Replicate 2	141	15.Dez	0	5	136	96,45390071	0
Replicate 2	141	18.Dez	4	9	132	93,61702128	0
Replicate 2	141	20.Dez	1	10	131	92,90780142	0
Replicate 2	141	22.Dez	1	11	130	92,19858156	0
Replicate 2	141	25.Dez	2	13	128	90,78014184	0
Replicate 2	141	27.Dez	5	18	123	87,23404255	0
Replicate 2	141	29.Dez	10	28	113	80,14184397	0
Replicate 2	141	01.Jan	16	44	97	68,79432624	0
Replicate 2	141	03.Jan	12	56	85	60,28368794	0
Replicate 2	141	05.Jan	16	72	69	48,93617021	0
Replicate 2	141	08.Jan	21	93	48	34,04255319	0
Replicate 2	141	10.Jan	13	106	35	24,82269504	0
Replicate 2	141	12.Jan	12	118	23	16,31205674	0
Replicate 2	141	15.Jan	5	123	18	12,76595745	0
Replicate 2	141	17.Jan	3	126	15	10,63829787	0
Replicate 2	141	19.Jan	14	140	1	0,709219858	0
Replicate 2	141	22.Jan	1	141	0	0	0

		III					
Replicate 3	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 3	109	04.Dez	0	0	109	100	0
Replicate 3	109	06.Dez	3	3	106	97,24770642	0
Replicate 3	109	08.Dez	0	3	106	97,24770642	0
Replicate 3	109	11.Dez	0	3	106	97,24770642	0
Replicate 3	109	13.Dez	2	5	104	95,41284404	0
Replicate 3	109	15.Dez	2	7	102	93,57798165	0
Replicate 3	109	18.Dez	2	9	100	91,74311927	0
Replicate 3	109	20.Dez	0	9	100	91,74311927	0
Replicate 3	109	22.Dez	1	10	99	90,82568807	0
Replicate 3	109	25.Dez	3	13	96	88,0733945	0
Replicate 3	109	27.Dez	1	14	95	87,1559633	0
Replicate 3	109	29.Dez	3	17	92	84,40366972	0
Replicate 3	109	01.Jan	10	27	82	75,2293578	0
Replicate 3	109	03.Jan	20	47	62	56,88073394	0
Replicate 3	109	05.Jan	10	57	52	47,70642202	0
Replicate 3	109	08.Jan	9	66	43	39,44954128	0
Replicate 3	109	10.Jan	3	69	40	36,69724771	0
Replicate 3	109	12.Jan	5	74	35	32,11009174	0
Replicate 3	109	15.Jan	13	87	22	20,18348624	0
Replicate 3	109	17.Jan	5	92	17	15,59633028	0
Replicate 3	109	19.Jan	3	95	14	12,8440367	0
Replicate 3	109	22.Jan	10	105	4	3,669724771	0
Replicate 3	109	24.Jan	4	109	0	0	0

0x kuk

		I					
Replicate 1	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 1	51	22.Nov	0	0	51	100	0
Replicate 1	51	24.Nov	0	0	51	100	0
Replicate 1	51	27.Nov	1	1	50	98,03921569	0
Replicate 1	51	29.Nov	0	1	50	98,03921569	0
Replicate 1	51	01.Dez	0	1	50	98,03921569	0
Replicate 1	51	04.Dez	2	3	48	94,11764706	0
Replicate 1	51	06.Dez	1	4	47	92,15686275	0
Replicate 1	51	08.Dez	1	5	46	90,19607843	0
Replicate 1	51	11.Dez	1	6	45	88,23529412	0
Replicate 1	51	15.Dez	0	6	45	88,23529412	0
Replicate 1	51	18.Dez	1	7	44	86,2745098	0
Replicate 1	51	20.Dez	2	10	41	80,39215686	0
Replicate 1	51	22.Dez	2	12	39	76,47058824	0
Replicate 1	51	25.Dez	4	16	35	68,62745098	0
Replicate 1	51	27.Dez	2	18	33	64,70588235	0
Replicate 1	51	29.Dez	7	25	26	50,98039216	0
Replicate 1	51	01.Jan	1	26	25	49,01960784	0
Replicate 1	51	03.Jan	2	28	23	45,09803922	0
Replicate 1	51	05.Jan	1	29	22	43,1372549	0
Replicate 1	51	08.Jan	1	30	21	41,17647059	0
Replicate 1	51	10.Jan	6	36	15	29,41176471	0
Replicate 1	51	12.Jan	2	38	13	25,49019608	0
Replicate 1	51	15.Jan	3	41	10	19,60784314	0
Replicate 1	51	17.Jan	3	44	7	13,7254902	0
Replicate 1	51	19.Jan	0	44	7	13,7254902	0
Replicate 1	51	22.Jan	2	46	5	9,803921569	0
Replicate 1	51	24.Jan	2	48	3	5,882352941	0
Replicate 1	51	26.Jan	2	50	1	1,960784314	0
Replicate 1	51	29.Jan	1	51	0	0	0

		II					
Replicate 2	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 2	164	24.Nov	0	0	164	100	0
Replicate 2	164	27.Nov	0	0	164	100	0
Replicate 2	164	29.Nov	3	3	161	98,17073171	0
Replicate 2	164	01.Dez	1	4	160	97,56097561	0
Replicate 2	164	04.Dez	0	4	160	97,56097561	0
Replicate 2	164	06.Dez	1	5	159	96,95121951	0
Replicate 2	164	08.Dez	0	5	159	96,95121951	0
Replicate 2	164	11.Dez	2	7	157	95,73170732	0
Replicate 2	164	11.Dez	0	7	157	95,73170732	0
Replicate 2	164	15.Dez	3	10	154	93,90243902	0
Replicate 2	164	18.Dez	5	15	149	90,85365854	0
Replicate 2	164	20.Dez	6	21	143	87,19512195	0
Replicate 2	164	22.Dez	10	31	133	81,09756098	0
Replicate 2	164	25.Dez	7	38	126	76,82926829	0
Replicate 2	164	27.Dez	4	42	122	74,3902439	0
Replicate 2	164	29.Dez	5	47	117	71,34146341	0
Replicate 2	164	01.Jan	10	57	107	65,24390244	0
Replicate 2	164	03.Jan	4	61	103	62,80487805	0
Replicate 2	164	05.Jan	8	69	95	57,92682927	0
Replicate 2	164	08.Jan	25	94	70	42,68292683	0
Replicate 2	164	10.Jan	2	96	68	41,46341463	0
Replicate 2	164	12.Jan	9	105	59	35,97560976	0
Replicate 2	164	15.Jan	15	120	44	26,82926829	0
Replicate 2	164	17.Jan	12	132	32	19,51219512	0
Replicate 2	164	19.Jan	7	139	25	15,24390244	0
Replicate 2	164	22.Jan	5	144	20	12,19512195	0
Replicate 2	164	24.Jan	10	154	10	6,097560976	0
Replicate 2	164	26.Jan	6	160	4	2,43902439	0
Replicate 2	164	29.Jan	4	164	0	0	0

		III					
Replicate 3	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 3	110	01.Dez	0	0	110	100	0
Replicate 3	110	04.Dez	2	2	108	98,18181818	0
Replicate 3	110	06.Dez	0	2	108	98,18181818	0
Replicate 3	110	08.Dez	1	3	107	97,27272727	0
Replicate 3	110	11.Dez	0	3	107	97,27272727	0
Replicate 3	110	11.Dez	1	4	106	96,36363636	0
Replicate 3	110	15.Dez	1	5	105	95,45454545	0
Replicate 3	110	18.Dez	2	7	103	93,63636364	0
Replicate 3	110	20.Dez	2	9	101	91,81818182	0
Replicate 3	110	22.Dez	3	12	98	89,09090909	0
Replicate 3	110	25.Dez	5	17	93	84,54545455	0
Replicate 3	110	27.Dez	3	20	90	81,81818182	0
Replicate 3	110	29.Dez	4	24	86	78,18181818	0
Replicate 3	110	01.Jan	9	33	77	70	0
Replicate 3	110	03.Jan	4	37	73	66,36363636	0
Replicate 3	110	05.Jan	7	44	66	60	0
Replicate 3	110	08.Jan	20	64	46	41,81818182	0
Replicate 3	110	10.Jan	6	70	40	36,36363636	0
Replicate 3	110	12.Jan	5	75	35	31,81818182	0
Replicate 3	110	15.Jan	15	90	20	18,18181818	0
Replicate 3	110	17.Jan	3	93	17	15,45454545	0
Replicate 3	110	19.Jan	3	96	14	12,72727273	0
Replicate 3	110	22.Jan	6	102	8	7,272727273	0
Replicate 3	110	24.Jan	4	106	4	3,636363636	0
Replicate 3	110	26.Jan	0	106	4	3,636363636	0
Replicate 3	110	29.Jan	4	110	0	0	0

4x kuk

	I					
Replicate 1	N =	**Datum**	**Tote Männch**	**Dead flies**	**Survivor**	**%**
Replicate 1	79	24.Nov	0	0	79	100
Replicate 1	79	27.Nov	0	0	79	100
Replicate 1	79	29.Nov	1	1	78	98,7341772
Replicate 1	79	01.Dez	1	2	77	97,4683544
Replicate 1	79	04.Dez	2	4	75	94,9367089
Replicate 1	79	06.Dez	1	5	74	93,6708861
Replicate 1	79	08.Dez	1	6	73	92,4050633
Replicate 1	79	11.Dez	0	6	73	92,4050633
Replicate 1	79	13.Dez	2	8	71	89,8734177
Replicate 1	79	15.Dez	1	9	70	88,6075949
Replicate 1	79	18.Dez	14	23	56	70,8860759
Replicate 1	79	20.Dez	10	33	46	58,2278481
Replicate 1	79	22.Dez	6	39	40	50,6329114
Replicate 1	79	25.Dez	1	40	39	49,3670886
Replicate 1	79	27.Dez	8	48	31	39,2405063
Replicate 1	79	29.Dez	2	50	29	36,7088608
Replicate 1	79	01.Jan	7	57	22	27,8481013
Replicate 1	79	03.Jan	3	60	19	24,0506329
Replicate 1	79	05.Jan	4	64	15	18,9873418
Replicate 1	79	08.Jan	3	67	12	15,1898734
Replicate 1	79	10.Jan	1	68	11	13,9240506
Replicate 1	79	12.Jan	0	68	11	13,9240506
Replicate 1	79	15.Jan	1	69	10	12,6582278
Replicate 1	79	17.Jan	2	71	8	10,1265823
Replicate 1	79	19.Jan	0	71	8	10,1265823
Replicate 1	79	22.Jan	1	72	7	8,86075949
Replicate 1	79	24.Jan	4	76	3	3,79746835
Replicate 1	79	26.Jan	2	78	1	1,26582278
Replicate 1	79	29.Jan	1	79	0	0

		II				
Replicate 2	N =	**Datum**	**Tote Männch**	**Dead flies**	**Survivor**	**%**
Replicate 2	71	29.Nov	0	0	71	100
Replicate 2	71	01.Dez	1	1	70	98,5915493
Replicate 2	71	04.Dez	4	5	66	92,9577465
Replicate 2	71	06.Dez	0	5	66	92,9577465
Replicate 2	71	08.Dez	0	5	66	92,9577465
Replicate 2	71	11.Dez	1	6	65	91,5492958
Replicate 2	71	13.Dez	0	6	65	91,5492958
Replicate 2	71	15.Dez	4	10	61	85,915493
Replicate 2	71	18.Dez	7	17	54	76,056338
Replicate 2	71	20.Dez	4	21	50	70,4225352
Replicate 2	71	22.Dez	12	33	38	53,5211268
Replicate 2	71	25.Dez	17	50	21	29,5774648
Replicate 2	71	27.Dez	9	59	12	16,9014085
Replicate 2	71	29.Dez	4	63	8	11,2676056
Replicate 2	71	01.Jan	6	69	2	2,81690141
Replicate 2	71	03.Jan	4	57	14	19,7183099
Replicate 2	71	05.Jan	1	58	13	18,3098592
Replicate 2	71	08.Jan	7	65	6	8,45070423
Replicate 2	71	10.Jan	1	66	5	7,04225352
Replicate 2	71	12.Jan	1	67	4	5,63380282
Replicate 2	71	15.Jan	0	67	4	5,63380282
Replicate 2	71	17.Jan	3	70	1	1,4084507
Replicate 2	71	19.Jan	0	70	1	1,4084507
Replicate 2	71	22.Jan	1	71	0	0

			III				
Replicate 3	N =		**Datum**	**Tote Männch**	**Dead flies**	**Survivor**	**%**
Replicate 3		122	04.Dez	0	0	122	100
Replicate 3		122	06.Dez	1	1	121	99,1803279
Replicate 3		122	08.Dez	1	2	120	98,3606557
Replicate 3		122	11.Dez	2	4	118	96,7213115
Replicate 3		122	13.Dez	2	6	116	95,0819672
Replicate 3		122	15.Dez	2	8	114	93,442623
Replicate 3		122	18.Dez	5	12	110	90,1639344
Replicate 3		122	20.Dez	5	17	105	86,0655738
Replicate 3		122	22.Dez	11	28	94	77,0491803
Replicate 3		122	25.Dez	12	40	82	67,2131148
Replicate 3		122	27.Dez	22	62	60	49,1803279
Replicate 3		122	29.Dez	18	80	42	34,4262295
Replicate 3		122	01.Jan	11	91	31	25,4098361
Replicate 3		122	03.Jan	5	96	26	21,3114754
Replicate 3		122	05.Jan	3	99	23	18,852459
Replicate 3		122	08.Jan	5	104	18	14,7540984
Replicate 3		122	10.Jan	0	104	18	14,7540984
Replicate 3		122	12.Jan	5	109	13	10,6557377
Replicate 3		122	15.Jan	8	117	5	4,09836066
Replicate 3		122	17.Jan	2	119	3	2,45901639
Replicate 3		122	19.Jan	2	121	1	0,81967213
Replicate 3		122	22.Jan	1	122	0	0

6x kuk

I

Replicate 1	N		Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 1		67	22.Nov	0	0	67	100		0
Replicate 1		67	24.Nov	0	0	67	100		0
Replicate 1		67	27.Nov	1	1	66	98,50746269		0
Replicate 1		67	29.Nov	3	4	63	94,02985075		0
Replicate 1		67	01.Dez	2	6	61	91,04477612		0
Replicate 1		67	04.Dez	4	10	57	85,07462687		0
Replicate 1		67	06.Dez	2	12	55	82,08955224		0
Replicate 1		67	08.Dez	8	20	47	70,14925373		0
Replicate 1		67	11.Dez	12	32	35	52,23880597		0
Replicate 1		67	13.Dez	4	36	31	46,26865672		0
Replicate 1		67	15.Dez	18	54	13	19,40298507		0
Replicate 1		67	18.Dez	8	62	5	7,462686567		0
Replicate 1		67	20.Dez	0	62	5	7,462686567		0
Replicate 1		67	22.Dez	1	63	4	5,970149254		0
Replicate 1		67	25.Dez	2	65	2	2,985074627		0
Replicate 1		67	27.Dez	1	66	1	1,492537313		0
Replicate 1		67	29.Dez	1	67	0	0		0

II

Replicate 2	N		Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 2		121	27.Nov	0	0	121	100		0
Replicate 2		121	29.Nov	1	1	120	99,17355372		0
Replicate 2		121	01.Dez	0	1	120	99,17355372		0
Replicate 2		121	04.Dez	9	10	111	91,73553719		0
Replicate 2		121	06.Dez	3	13	108	89,25619835		0
Replicate 2		121	08.Dez	3	16	105	86,7768595		0
Replicate 2		121	11.Dez	15	31	90	74,38016529		0
Replicate 2		121	13.Dez	2	33	88	72,72727273		0
Replicate 2		121	15.Dez	12	45	76	62,80991736		0
Replicate 2		121	18.Dez	19	64	57	47,10743802		0
Replicate 2		121	20.Dez	7	71	50	41,32231405		0
Replicate 2		121	22.Dez	15	86	35	28,92561983		0
Replicate 2		121	25.Dez	18	104	17	14,04958678		0
Replicate 2		121	27.Dez	5	109	12	9,917355372		0
Replicate 2		121	29.Dez	12	121	0	0		0

III

Replicate 3	N		Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 3		85	27.Nov	0	0	85	100		0
Replicate 3		85	29.Nov	1	1	84	98,82352941		0
Replicate 3		85	01.Dez	1	2	83	97,64705882		0
Replicate 3		85	04.Dez	0	2	83	97,64705882		0
Replicate 3		85	06.Dez	0	2	83	97,64705882		0
Replicate 3		85	08.Dez	2	4	81	95,29411765		0
Replicate 3		85	11.Dez	0	4	81	95,29411765		0
Replicate 3		85	13.Dez	2	6	79	92,94117647		0
Replicate 3		85	15.Dez	4	10	75	88,23529412		0
Replicate 3		85	18.Dez	1	11	74	87,05882353		0
Replicate 3		85	20.Dez	2	13	72	84,70588235		0
Replicate 3		85	22.Dez	4	17	68	80		0
Replicate 3		85	25.Dez	17	34	51	60		0
Replicate 3		85	27.Dez	10	44	41	48,23529412		0
Replicate 3		85	29.Dez	14	58	27	31,76470588		0
Replicate 3		85	01.Jan	8	66	19	22,35294118		0
Replicate 3		85	03.Jan	7	73	12	14,11764706		0
Replicate 3		85	05.Jan	3	76	9	10,58823529		0
Replicate 3		85	08.Jan	9	85	0	0		0

GS 1-106/UASkuk

without RU486

Replicate 1			I					
Replicate 1	**N**		**Age-interval**	**dx**		**totaled numb**	**Nx**	
Replicate 1		116	20.Okt	0	0	116	100	0
Replicate 1		116	23.Okt	1	1	115	99,13793103	0
Replicate 1		116	26.Okt	4	5	111	95,68965517	0
Replicate 1		116	31.Okt	2	7	109	93,96551724	0
Replicate 1		116	03.Nov	0	7	109	93,96551724	0
Replicate 1		116	08.Nov	2	9	107	92,24137931	0
Replicate 1		116	10.Nov	1	10	106	91,37931034	0
Replicate 1		116	13.Nov	1	11	105	90,51724138	0
Replicate 1		116	15.Nov	1	12	104	89,65517241	0
Replicate 1		116	17.Nov	1	13	103	88,79310345	0
Replicate 1		116	20.Nov	0	13	103	88,79310345	0
Replicate 1		116	22.Nov	1	14	102	87,93103448	0
Replicate 1		116	24.Nov	0	14	102	87,93103448	0
Replicate 1		116	27.Nov	1	15	101	87,06896552	0
Replicate 1		116	29.Nov	2	17	99	85,34482759	0
Replicate 1		116	01.Dez	0	17	99	85,34482759	0
Replicate 1		116	04.Dez	8	25	91	78,44827586	0
Replicate 1		116	06.Dez	0	25	91	78,44827586	0
Replicate 1		116	08.Dez	3	28	88	75,86206897	0
Replicate 1		116	11.Dez	3	31	85	73,27586207	0
Replicate 1		116	13.Dez	2	33	83	71,55172414	0
Replicate 1		116	15.Dez	7	40	76	65,51724138	0
Replicate 1		116	18.Dez	7	47	69	59,48275862	0
Replicate 1		116	20.Dez	7	54	62	53,44827586	0
Replicate 1		116	22.Dez	5	59	57	49,13793103	0
Replicate 1		116	25.Dez	27	86	30	25,86206897	0
Replicate 1		116	27.Dez	2	88	28	24,13793103	0
Replicate 1		116	29.Dez	13	101	15	12,93103448	0
Replicate 1		116	01.Jan	10	111	5	4,310344828	0
Replicate 1		116	03.Jan	2	113	3	2,586206897	0
Replicate 1		116	05.Jan	3	116	0	0	0

			II					
Replicate 2	**N**		**Age-interval**	**dx**		**totaled numb**	**Nx**	
Replicate 2		105	23.Okt	0	0	105	100	0
Replicate 2		105	26.Okt	2	2	103	98,0952381	0
Replicate 2		105	31.Okt	1	3	102	97,14285714	0
Replicate 2		105	03.Nov	0	3	102	97,14285714	0
Replicate 2		105	08.Nov	0	3	102	97,14285714	0
Replicate 2		105	10.Nov	0	3	102	97,14285714	0
Replicate 2		105	13.Nov	0	3	102	97,14285714	0
Replicate 2		105	15.Nov	0	3	102	97,14285714	0
Replicate 2		105	17.Nov	1	4	101	96,19047619	0
Replicate 2		105	20.Nov	0	4	101	96,19047619	0
Replicate 2		105	22.Nov	0	4	101	96,19047619	0
Replicate 2		105	24.Nov	0	4	101	96,19047619	0
Replicate 2		105	27.Nov	0	4	101	96,19047619	0
Replicate 2		105	29.Nov	3	7	98	93,33333333	0
Replicate 2		105	01.Dez	1	8	97	92,38095238	0
Replicate 2		105	04.Dez	1	9	96	91,42857143	0
Replicate 2		105	06.Dez	2	11	94	89,52380952	0
Replicate 2		105	08.Dez	5	16	89	84,76190476	0
Replicate 2		105	11.Dez	1	17	88	83,80952381	0
Replicate 2		105	13.Dez	7	24	81	77,14285714	0
Replicate 2		105	15.Dez	10	34	71	67,61904762	0
Replicate 2		105	18.Dez	3	37	68	64,76190476	0
Replicate 2		105	20.Dez	3	40	65	61,9047619	0
Replicate 2		105	22.Dez	7	47	58	55,23809524	0
Replicate 2		105	25.Dez	26	73	32	30,47619048	0
Replicate 2		105	27.Dez	15	88	17	16,19047619	0
Replicate 2		105	29.Dez	8	96	9	8,571428571	0
Replicate 2		105	01.Jan	3	99	6	5,714285714	0
Replicate 2		105	03.Jan	0	99	6	5,714285714	0
Replicate 2		105	05.Jan	1	100	5	4,761904762	0
Replicate 2		105	08.Jan	5	105	0	0	0

			III					
Replicate 3	**N**		**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 3		132	26.Okt	0	0	132	100	0
Replicate 3		132	31.Okt	3	3	129	97,72727273	0
Replicate 3		132	03.Nov	2	5	127	96,21212121	0
Replicate 3		132	08.Nov	1	6	126	95,45454545	0
Replicate 3		132	10.Nov	0	6	126	95,45454545	0
Replicate 3		132	13.Nov	4	10	122	92,42424242	0
Replicate 3		132	15.Nov	0	10	122	92,42424242	0
Replicate 3		132	17.Nov	0	10	122	92,42424242	0
Replicate 3		132	20.Nov	0	10	122	92,42424242	0
Replicate 3		132	22.Nov	1	11	121	91,66666667	0
Replicate 3		132	24.Nov	0	11	121	91,66666667	0
Replicate 3		132	27.Nov	2	13	119	90,15151515	0
Replicate 3		132	29.Nov	0	13	119	90,15151515	0
Replicate 3		132	01.Dez	3	16	116	87,87878788	0
Replicate 3		132	04.Dez	4	20	112	84,84848485	0
Replicate 3		132	06.Dez	0	20	112	84,84848485	0
Replicate 3		132	08.Dez	10	30	102	77,27272727	0
Replicate 3		132	11.Dez	9	39	93	70,45454545	0
Replicate 3		132	13.Dez	6	45	87	65,90909091	0
Replicate 3		132	15.Dez	16	61	71	53,78787879	0
Replicate 3		132	18.Dez	12	73	59	44,6969697	0
Replicate 3		132	20.Dez	17	90	42	31,81818182	0
Replicate 3		132	22.Dez	6	96	36	27,27272727	0
Replicate 3		132	25.Dez	16	112	20	15,15151515	0
Replicate 3		132	27.Dez	6	118	14	10,60606061	0
Replicate 3		132	29.Dez	7	125	7	5,303030303	0
Replicate 3		132	01.Jan	7	132	0	0	0

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	I N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 1	139	23.Okt	0	0	139	100		0
Replicate 1	139	26.Okt	1	1	138	99,2805755		0
Replicate 1	139	31.Okt	2	3	136	97,8417266		0
Replicate 1	139	03.Nov	0	3	136	97,8417266		0
Replicate 1	139	08.Nov	2	5	134	96,4028777		0
Replicate 1	139	10.Nov	0	5	134	96,4028777		0
Replicate 1	139	13.Nov	0	5	134	96,4028777		0
Replicate 1	139	15.Nov	4	9	130	93,5251799		0
Replicate 1	139	17.Nov	0	9	130	93,5251799		0
Replicate 1	139	20.Nov	1	10	129	92,8057554		0
Replicate 1	139	22.Nov	0	10	129	92,8057554		0
Replicate 1	139	24.Nov	2	12	127	91,3669065		0
Replicate 1	139	27.Nov	1	13	126	90,647482		0
Replicate 1	139	29.Nov	1	14	125	89,9280576		0
Replicate 1	139	01.Dez	0	14	125	89,9280576		0
Replicate 1	139	04.Dez	2	16	123	88,4892086		0
Replicate 1	139	06.Dez	2	18	121	87,0503597		0
Replicate 1	139	08.Dez	4	22	117	84,1726619		0
Replicate 1	139	11.Dez	9	31	108	77,6978417		0
Replicate 1	139	13.Dez	12	43	96	69,0647482		0
Replicate 1	139	15.Dez	14	57	82	58,9928058		0
Replicate 1	139	18.Dez	12	69	70	50,3597122		0
Replicate 1	139	20.Dez	13	82	57	41,0071942		0
Replicate 1	139	22.Dez	5	87	52	37,4100719		0
Replicate 1	139	25.Dez	11	98	41	29,4964029		0
Replicate 1	139	27.Dez	14	112	27	19,4244604		0
Replicate 1	139	29.Dez	22	134	5	3,5971223		0
Replicate 1	139	01.Jan	7	141	-2	-1,43884892		0
Replicate 1	139	03.Jan	7	148	-9	-6,47482014		0
Replicate 1	139	05.Jan	1	149	-10	-7,1942446		0

Replicate 2	II N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 2	125	25.Okt	0	0	125	100		0
Replicate 2	125	26.Okt	4	4	121	96,8		0
Replicate 2	125	31.Okt	1	5	120	96		0
Replicate 2	125	03.Nov	1	6	119	95,2		0
Replicate 2	125	08.Nov	0	6	119	95,2		0
Replicate 2	125	10.Nov	0	6	119	95,2		0
Replicate 2	125	13.Nov	1	7	118	94,4		0
Replicate 2	125	15.Nov	2	9	116	92,8		0
Replicate 2	125	17.Nov	0	9	116	92,8		0
Replicate 2	125	20.Nov	1	10	115	92		0
Replicate 2	125	22.Nov	2	12	113	90,4		0
Replicate 2	125	24.Nov	1	13	112	89,6		0
Replicate 2	125	27.Nov	3	16	109	87,2		0
Replicate 2	125	29.Nov	1	17	108	86,4		0
Replicate 2	125	01.Dez	2	19	106	84,8		0
Replicate 2	125	04.Dez	3	22	103	82,4		0
Replicate 2	125	06.Dez	1	23	102	81,6		0
Replicate 2	125	08.Dez	2	25	100	80		0
Replicate 2	125	11.Dez	5	30	95	76		0
Replicate 2	125	13.Dez	10	40	85	68		0
Replicate 2	125	15.Dez	1	41	84	67,2		0
Replicate 2	125	18.Dez	6	47	78	62,4		0
Replicate 2	125	20.Dez	5	52	73	58,4		0
Replicate 2	125	22.Dez	15	67	58	46,4		0
Replicate 2	125	25.Dez	5	72	53	42,4		0
Replicate 2	125	27.Dez	5	77	48	38,4		0
Replicate 2	125	29.Dez	15	92	33	26,4		0
Replicate 2	125	01.Jan	24	116	9	7,2		0
Replicate 2	125	03.Jan	2	118	7	5,6		0
Replicate 2	125	05.Jan	7	125	0	0		0

	III N		Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 3		174	26.Okt	0	0	174	100		0
Replicate 3		174	31.Okt	2	2	172	98,8505747		0
Replicate 3		174	03.Nov	6	8	166	95,4022989		0
Replicate 3		174	08.Nov	2	10	164	94,2528736		0
Replicate 3		174	10.Nov	3	13	161	92,5287356		0
Replicate 3		174	13.Nov	3	16	158	90,8045977		0
Replicate 3		174	15.Nov	0	16	158	90,8045977		0
Replicate 3		174	17.Nov	1	17	157	90,2298851		0
Replicate 3		174	20.Nov	3	20	154	88,5057471		0
Replicate 3		174	22.Nov	0	20	154	88,5057471		0
Replicate 3		174	24.Nov	1	21	153	87,9310345		0
Replicate 3		174	27.Nov	1	22	152	87,3563218		0
Replicate 3		174	29.Nov	0	22	152	87,3563218		0
Replicate 3		174	01.Dez	2	24	150	86,2068966		0
Replicate 3		174	04.Dez	7	31	143	82,183908		0
Replicate 3		174	06.Dez	3	34	140	80,4597701		0
Replicate 3		174	08.Dez	6	40	134	77,0114943		0
Replicate 3		174	11.Dez	3	34	140	80,4597701		0
Replicate 3		174	13.Dez	5	39	135	77,5862069		0
Replicate 3		174	15.Dez	4	43	131	75,2873563		0
Replicate 3		174	18.Dez	9	52	122	70,1149425		0
Replicate 3		174	20.Dez	10	62	112	64,3678161		0
Replicate 3		174	22.Dez	5	67	107	61,4942529		0
Replicate 3		174	25.Dez	9	76	98	56,3218391		0
Replicate 3		174	27.Dez	25	101	73	41,954023		0
Replicate 3		174	29.Dez	24	125	49	28,1609195		0
Replicate 3		174	01.Jan	40	165	9	5,17241379		0
Replicate 3		174	03.Jan	8	173	1	0,57471264		0
Replicate 3		174	05.Jan	7	180	-6	-3,44827586		0

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	N	Age-interval	dx	totaled numl	Nx	% Survivor	cx	
Replicate 1	136	20.Okt	0	0	136	100	0	
Replicate 1	136	23.Okt	1	1	135	99,2647059	0	
Replicate 1	136	26.Okt	1	2	134	98,5294118	0	
Replicate 1	136	31.Okt	1	3	133	97,7941176	0	
Replicate 1	136	03.Nov	1	4	132	97,0588235	0	
Replicate 1	136	08.Nov	1	5	131	96,3235294	0	
Replicate 1	136	10.Nov	0	5	131	96,3235294	0	
Replicate 1	136	13.Nov	4	9	127	93,3823529	0	
Replicate 1	136	15.Nov	0	9	127	93,3823529	0	
Replicate 1	136	17.Nov	0	9	127	93,3823529	0	
Replicate 1	136	20.Nov	5	14	122	89,7058824	0	
Replicate 1	136	22.Nov	1	15	121	88,9705882	0	
Replicate 1	136	24.Nov	8	23	113	83,0882353	0	
Replicate 1	136	27.Nov	5	28	108	79,4117647	0	
Replicate 1	136	29.Nov	9	37	99	72,7941176	0	
Replicate 1	136	01.Dez	10	47	89	65,4411765	0	
Replicate 1	136	04.Dez	4	51	85	62,5	0	
Replicate 1	136	06.Dez	3	54	82	60,2941176	0	
Replicate 1	136	08.Dez	9	63	73	53,6764706	0	
Replicate 1	136	11.Dez	19	82	54	39,7058824	0	
Replicate 1	136	13.Dez	2	84	52	38,2352941	0	
Replicate 1	136	15.Dez	16	100	36	26,4705882	0	
Replicate 1	136	18.Dez	8	108	28	20,5882353	0	
Replicate 1	136	20.Dez	7	115	21	15,4411765	0	
Replicate 1	136	22.Dez	10	125	11	8,08823529	0	
Replicate 1	136	25.Dez	3	128	8	5,88235294	0	
Replicate 1	136	27.Dez	8	136	0	0	0	

II

	N	Age-interval	dx	totaled numl	Nx	% Survivor	cx	
Replicate 2	152	23.Okt	0	0	152	100	0	
Replicate 2	152	26.Okt	2	2	150	98,6842105	0	
Replicate 2	152	31.Okt	7	9	143	94,0789474	0	
Replicate 2	152	03.Nov	1	10	142	93,4210526	0	
Replicate 2	152	08.Nov	3	13	139	91,4473684	0	
Replicate 2	152	10.Nov	0	13	139	91,4473684	0	
Replicate 2	152	13.Nov	5	18	134	88,1578947	0	
Replicate 2	152	15.Nov	1	19	133	87,5	0	
Replicate 2	152	17.Nov	2	21	131	86,1842105	0	
Replicate 2	152	20.Nov	0	21	131	86,1842105	0	
Replicate 2	152	22.Nov	2	23	129	84,8684211	0	
Replicate 2	152	24.Nov	5	28	124	81,5789474	0	
Replicate 2	152	27.Nov	3	31	121	79,6052632	0	
Replicate 2	152	29.Nov	6	37	115	75,6578947	0	
Replicate 2	152	01.Dez	5	42	110	72,3684211	0	
Replicate 2	152	04.Dez	5	47	105	69,0789474	0	
Replicate 2	152	06.Dez	1	48	104	68,4210526	0	
Replicate 2	152	08.Dez	16	64	88	57,8947368	0	
Replicate 2	152	11.Dez	8	72	80	52,6315789	0	
Replicate 2	152	13.Dez	5	77	75	49,3421053	0	
Replicate 2	152	15.Dez	12	89	63	41,4473684	0	
Replicate 2	152	18.Dez	13	102	50	32,8947368	0	
Replicate 2	152	20.Dez	7	109	43	28,2894737	0	
Replicate 2	152	22.Dez	8	117	35	23,0263158	0	
Replicate 2	152	25.Dez	17	134	18	11,8421053	0	
Replicate 2	152	27.Dez	10	144	8	5,26315789	0	
Replicate 2	152	29.Dez	2	146	6	3,94736842	0	
Replicate 2	152	01.Jan	6	152	0	0	0	

III

Replicate 3	**N**		**Age-interval**	**dx**	**totaled numl**	**Nx**	**% Survivor**	**cx**
Replicate 3		146	26.Okt	0	0	146	100	0
Replicate 3		146	31.Okt	1	1	145	99,3150685	0
Replicate 3		146	03.Nov	6	7	139	95,2054795	0
Replicate 3		146	08.Nov	1	8	138	94,5205479	0
Replicate 3		146	10.Nov	4	12	134	91,7808219	0
Replicate 3		146	13.Nov	2	14	132	90,4109589	0
Replicate 3		146	15.Nov	4	18	128	87,6712329	0
Replicate 3		146	17.Nov	2	20	126	86,3013699	0
Replicate 3		146	20.Nov	6	26	120	82,1917808	0
Replicate 3		146	22.Nov	0	26	120	82,1917808	0
Replicate 3		146	24.Nov	16	42	104	71,2328767	0
Replicate 3		146	27.Nov	12	54	92	63,0136986	0
Replicate 3		146	29.Nov	1	55	91	62,3287671	0
Replicate 3		146	01.Dez	8	63	83	56,8493151	0
Replicate 3		146	04.Dez	6	69	77	52,739726	0
Replicate 3		146	06.Dez	4	73	73	50	0
Replicate 3		146	08.Dez	14	87	59	40,4109589	0
Replicate 3		146	11.Dez	16	103	43	29,4520548	0
Replicate 3		146	13.Dez	3	106	40	27,3972603	0
Replicate 3		146	15.Dez	20	126	20	13,6986301	0
Replicate 3		146	18.Dez	6	132	14	9,5890411	0
Replicate 3		146	20.Dez	2	134	12	8,21917808	0
Replicate 3		146	22.Dez	8	142	4	2,73972603	0
Replicate 3		146	25.Dez	3	145	1	0,68493151	0
Replicate 3		146	27.Dez	1	146	0	0	0

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Replicate 1	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 1	145	20.Okt	0	0	145	100		0
Replicate 1	145	23.Okt	2	2	143	98,62068966		0
Replicate 1	145	26.Okt	3	5	140	96,55172414		0
Replicate 1	145	31.Okt	3	8	137	94,48275862		0
Replicate 1	145	03.Nov	0	8	137	94,48275862		0
Replicate 1	145	08.Nov	2	10	135	93,10344828		0
Replicate 1	145	10.Nov	1	11	134	92,4137931		0
Replicate 1	145	13.Nov	5	16	129	88,96551724		0
Replicate 1	145	15.Nov	0	16	129	88,96551724		0
Replicate 1	145	17.Nov	2	18	127	87,5862069		0
Replicate 1	145	20.Nov	2	20	125	86,20689655		0
Replicate 1	145	22.Nov	5	25	120	82,75862069		0
Replicate 1	145	24.Nov	3	28	117	80,68965517		0
Replicate 1	145	27.Nov	11	39	106	73,10344828		0
Replicate 1	145	29.Nov	5	44	101	69,65517241		0
Replicate 1	145	01.Dez	7	51	94	64,82758621		0
Replicate 1	145	04.Dez	9	60	85	58,62068966		0
Replicate 1	145	06.Dez	4	64	81	55,86206897		0
Replicate 1	145	08.Dez	12	76	69	47,5862069		0
Replicate 1	145	11.Dez	9	85	60	41,37931034		0
Replicate 1	145	13.Dez	5	90	55	37,93103448		0
Replicate 1	145	15.Dez	13	103	42	28,96551724		0
Replicate 1	145	18.Dez	20	123	22	15,17241379		0
Replicate 1	145	20.Dez	4	127	18	12,4137931		0
Replicate 1	145	22.Dez	8	135	10	6,896551724		0
Replicate 1	145	25.Dez	4	139	6	4,137931034		0
Replicate 1	145	27.Dez	6	145	0	0		0

II

Replicate 2	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx	
Replicate 2	146	23.Okt	0	0	146	100		0
Replicate 2	146	26.Okt	0	0	146	100		0
Replicate 2	146	31.Okt	3	3	143	97,94520548		0
Replicate 2	146	03.Nov	0	3	143	97,94520548		0
Replicate 2	146	08.Nov	0	3	143	97,94520548		0
Replicate 2	146	10.Nov	0	3	143	97,94520548		0
Replicate 2	146	13.Nov	2	5	141	96,57534247		0
Replicate 2	146	15.Nov	2	7	139	95,20547945		0
Replicate 2	146	17.Nov	2	9	137	93,83561644		0
Replicate 2	146	20.Nov	6	15	131	89,7260274		0
Replicate 2	146	22.Nov	1	16	130	89,04109589		0
Replicate 2	146	24.Nov	1	17	129	88,35616438		0
Replicate 2	146	27.Nov	8	25	121	82,87671233		0
Replicate 2	146	29.Nov	11	36	110	75,34246575		0
Replicate 2	146	01.Dez	3	39	107	73,28767123		0
Replicate 2	146	04.Dez	9	48	98	67,12328767		0
Replicate 2	146	06.Dez	4	52	94	64,38356164		0
Replicate 2	146	08.Dez	13	65	81	55,47945205		0
Replicate 2	146	11.Dez	6	71	75	51,36986301		0
Replicate 2	146	13.Dez	4	75	71	48,63013699		0
Replicate 2	146	15.Dez	2	77	69	47,26027397		0
Replicate 2	146	18.Dez	10	87	59	40,4109589		0
Replicate 2	146	20.Dez	8	95	51	34,93150685		0
Replicate 2	146	22.Dez	10	105	41	28,08219178		0
Replicate 2	146	25.Dez	5	110	36	24,65753425		0
Replicate 2	146	27.Dez	20	130	16	10,95890411		0
Replicate 2	146	29.Dez	8	138	8	5,479452055		0
Replicate 2	146	01.Jan	8	146	0	0		0

III

Replicate 3	N	Age-interval	dx	totaled numb	Nx	% Survivor	cx
Replicate 3	137	25.Okt	0	0	137	100	0
Replicate 3	137	26.Okt	2	2	135	98,54014599	0
Replicate 3	137	31.Okt	13	15	122	89,05109489	0
Replicate 3	137	03.Nov	7	22	115	83,94160584	0
Replicate 3	137	08.Nov	4	26	111	81,02189781	0
Replicate 3	137	10.Nov	4	30	107	78,10218978	0
Replicate 3	137	13.Nov	4	30	107	78,10218978	0
Replicate 3	137	15.Nov	1	31	106	77,37226277	0
Replicate 3	137	17.Nov	5	36	101	73,72262774	0
Replicate 3	137	20.Nov	1	37	100	72,99270073	0
Replicate 3	137	22.Nov	1	38	99	72,26277372	0
Replicate 3	137	24.Nov	3	41	96	70,0729927	0
Replicate 3	137	27.Nov	2	43	94	68,61313869	0
Replicate 3	137	29.Nov	0	43	94	68,61313869	0
Replicate 3	137	01.Dez	2	45	92	67,15328467	0
Replicate 3	137	04.Dez	6	51	86	62,77372263	0
Replicate 3	137	06.Dez	4	55	82	59,8540146	0
Replicate 3	137	08.Dez	3	58	79	57,66423358	0
Replicate 3	137	11.Dez	2	60	77	56,20437956	0
Replicate 3	137	13.Dez	7	67	70	51,09489051	0
Replicate 3	137	15.Dez	5	72	65	47,44525547	0
Replicate 3	137	18.Dez	4	78	59	43,06569343	0
Replicate 3	137	20.Dez	8	86	51	37,22627737	0
Replicate 3	137	22.Dez	9	95	42	30,65693431	0
Replicate 3	137	25.Dez	11	106	31	22,62773723	0
Replicate 3	137	27.Dez	14	120	17	12,40875912	0
Replicate 3	137	29.Dez	5	125	12	8,759124088	0
Replicate 3	137	01.Jan	7	132	5	3,649635036	0
Replicate 3	137	03.Jan	2	134	3	2,189781022	0
Replicate 3	137	05.Jan	1	135	2	1,459854015	0
Replicate 3	137	08.Jan	2	137	0	0	0

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Replicate 1	**N**		**Age-interval**	**dx**		**totaled numl**	**Nx**	
Replicate 1		46	20.Okt	0	0	46	100	0
Replicate 1		46	23.Okt	1	1	45	97,826087	0
Replicate 1		46	26.Okt	1	2	44	95,6521739	0
Replicate 1		46	31.Okt	0	2	44	95,6521739	0
Replicate 1		46	03.Nov	0	2	44	95,6521739	0
Replicate 1		46	08.Nov	1	3	43	93,4782609	0
Replicate 1		46	10.Nov	0	3	43	93,4782609	0
Replicate 1		46	13.Nov	3	6	40	86,9565217	0
Replicate 1		46	15.Nov	0	6	40	86,9565217	0
Replicate 1		46	17.Nov	2	8	38	82,6086957	0
Replicate 1		46	20.Nov	3	11	35	76,0869565	0
Replicate 1		46	22.Nov	2	13	33	71,7391304	0
Replicate 1		46	24.Nov	1	14	32	69,5652174	0
Replicate 1		46	27.Nov	2	16	30	65,2173913	0
Replicate 1		46	29.Nov	5	21	25	54,3478261	0
Replicate 1		46	01.Dez	5	26	20	43,4782609	0
Replicate 1		46	04.Dez	1	27	19	41,3043478	0
Replicate 1		46	06.Dez	1	28	18	39,1304348	0
Replicate 1		46	08.Dez	4	32	14	30,4347826	0
Replicate 1		46	11.Dez	2	34	12	26,0869565	0
Replicate 1		46	13.Dez	6	40	6	13,0434783	0
Replicate 1		46	15.Dez	3	43	3	6,52173913	0
Replicate 1		46	18.Dez	3	46	0	0	0

			II					
Replicate 2	**N**		**Age-interval**	**dx**		**totaled numl**	**Nx**	
Replicate 2		78	23.Okt	0	0	78	100	0
Replicate 2		78	26.Okt	0	0	78	100	0
Replicate 2		78	31.Okt	0	0	78	100	0
Replicate 2		78	03.Nov	0	0	78	100	0
Replicate 2		78	08.Nov	0	0	78	100	0
Replicate 2		78	10.Nov	0	0	78	100	0
Replicate 2		78	13.Nov	6	6	72	92,3076923	0
Replicate 2		78	15.Nov	0	6	72	92,3076923	0
Replicate 2		78	17.Nov	5	11	67	85,8974359	0
Replicate 2		78	20.Nov	2	13	65	83,3333333	0
Replicate 2		78	22.Nov	3	16	62	79,4871795	0
Replicate 2		78	24.Nov	7	23	55	70,5128205	0
Replicate 2		78	27.Nov	11	34	44	56,4102564	0
Replicate 2		78	29.Nov	6	40	38	48,7179487	0
Replicate 2		78	01.Dez	4	44	34	43,5897436	0
Replicate 2		78	04.Dez	9	53	25	32,0512821	0
Replicate 2		78	06.Dez	2	55	23	29,4871795	0
Replicate 2		78	08.Dez	9	64	14	17,9487179	0
Replicate 2		78	11.Dez	5	69	9	11,5384615	0
Replicate 2		78	13.Dez	3	72	6	7,69230769	0
Replicate 2		78	15.Dez	2	74	4	5,12820513	0
Replicate 2		78	18.Dez	0		78	100	0

III

Replicate 3	N		Age-interval	dx	totaled numl	Nx	% Survivor	cx	
Replicate 3		174	11.Dez	0	0	174	100		0
Replicate 3		174	13.Dez	0	0	174	100		0
Replicate 3		174	15.Dez	0	0	174	100		0
Replicate 3		174	18.Dez	0	0	174	100		0
Replicate 3		174	20.Dez	0	0	174	100		0
Replicate 3		174	22.Dez	0	0	174	100		0
Replicate 3		174	25.Dez	1	1	173	99,4252874		0
Replicate 3		174	27.Dez	1	2	172	98,8505747		0
Replicate 3		174	29.Dez	0	2	172	98,8505747		0
Replicate 3		174	01.Jan	4	6	168	96,5517241		0
Replicate 3		174	03.Jan	2	8	166	95,4022989		0
Replicate 3		174	05.Jan	8	16	158	90,8045977		0
Replicate 3		174	08.Jan	21	37	137	78,7356322		0
Replicate 3		174	10.Jan	3	40	134	77,0114943		0
Replicate 3		174	12.Jan	10	50	124	71,2643678		0
Replicate 3		174	15.Jan	8	58	116	66,6666667		0
Replicate 3		174	17.Jan	5	63	111	63,7931034		0
Replicate 3		174	19.Jan	14	77	97	55,7471264		0
Replicate 3		174	22.Jan	19	96	78	44,8275862		0
Replicate 3		174	24.Jan	3	99	75	43,1034483		0
Replicate 3		174	26.Jan	12	111	63	36,2068966		0
Replicate 3		174	29.Jan	17	128	46	26,4367816		0
Replicate 3		174	31.Jan	17	145	29	16,6666667		0
Replicate 3		174	02.Feb	5	150	24	13,7931034		0
Replicate 3		174	05.Feb	11	161	13	7,47126437		0
Replicate 3		174	07.Feb	3	164	10	5,74712644		0
Replicate 3		174	09.Feb	10	174	0	0		0

			IV						
Replicate 4	N		Age-interval	dx	totaled numl	Nx	% Survivor	cx	
Replicate 4		170	11.Dez	0	0	170	100		0
Replicate 4		170	13.Dez	2	2	168	98,8235294		0
Replicate 4		170	15.Dez	0	2	168	98,8235294		0
Replicate 4		170	18.Dez	0	2	168	98,8235294		0
Replicate 4		170	20.Dez	0	2	168	98,8235294		0
Replicate 4		170	22.Dez	1	3	167	98,2352941		0
Replicate 4		170	25.Dez	0	3	167	98,2352941		0
Replicate 4		170	27.Dez	2	5	165	97,0588235		0
Replicate 4		170	29.Dez	1	6	164	96,4705882		0
Replicate 4		170	01.Jan	0	6	164	96,4705882		0
Replicate 4		170	03.Jan	2	8	162	95,2941176		0
Replicate 4		170	05.Jan	3	11	159	93,5294118		0
Replicate 4		170	08.Jan	5	16	154	90,5882353		0
Replicate 4		170	10.Jan	9	25	145	85,2941176		0
Replicate 4		170	12.Jan	3	28	142	83,5294118		0
Replicate 4		170	15.Jan	9	37	133	78,2352941		0
Replicate 4		170	17.Jan	5	42	128	75,2941176		0
Replicate 4		170	19.Jan	4	46	124	72,9411765		0
Replicate 4		170	22.Jan	6	52	118	69,4117647		0
Replicate 4		170	24.Jan	4	56	114	67,0588235		0
Replicate 4		170	26.Jan	4	60	110	64,7058824		0
Replicate 4		170	29.Jan	20	80	90	52,9411765		0
Replicate 4		170	31.Jan	17	97	73	42,9411765		0
Replicate 4		170	02.Feb	12	109	61	35,8823529		0
Replicate 4		170	05.Feb	16	125	45	26,4705882		0
Replicate 4		170	07.Feb	14	139	31	18,2352941		0
Replicate 4		170	09.Feb	1	140	30	17,6470588		0

		V					
Replicate 5	**N**	**Age-interval**	**dx**	**totaled numl**	**Nx**	**% Survivor**	**cx**
Replicate 5	124	11.Dez	0	0	124	100	0
Replicate 5	124	13.Dez	1	1	123	99,1935484	0
Replicate 5	124	15.Dez	0	1	123	99,1935484	0
Replicate 5	124	18.Dez	0	1	123	99,1935484	0
Replicate 5	124	20.Dez	0	1	123	99,1935484	0
Replicate 5	124	22.Dez	0	1	123	99,1935484	0
Replicate 5	124	25.Dez	0	1	123	99,1935484	0
Replicate 5	124	27.Dez	3	4	120	96,7741935	0
Replicate 5	124	29.Dez	0	4	120	96,7741935	0
Replicate 5	124	01.Jan	2	6	118	95,1612903	0
Replicate 5	124	03.Jan	2	8	116	93,5483871	0
Replicate 5	124	05.Jan	1	9	115	92,7419355	0
Replicate 5	124	08.Jan	4	13	111	89,516129	0
Replicate 5	124	10.Jan	3	16	108	87,0967742	0
Replicate 5	124	12.Jan	4	20	104	83,8709677	0
Replicate 5	124	15.Jan	8	28	96	77,4193548	0
Replicate 5	124	17.Jan	2	30	94	75,8064516	0
Replicate 5	124	19.Jan	4	34	90	72,5806452	0
Replicate 5	124	22.Jan	7	41	83	66,9354839	0
Replicate 5	124	24.Jan	4	45	79	63,7096774	0
Replicate 5	124	26.Jan	5	50	74	59,6774194	0
Replicate 5	124	29.Jan	12	62	62	50	0
Replicate 5	124	31.Jan	3	65	59	47,5806452	0
Replicate 5	124	02.Feb	8	73	51	41,1290323	0
Replicate 5	124	05.Feb	15	88	36	29,0322581	0
Replicate 5	124	07.Feb	4	92	32	25,8064516	0
Replicate 5	124	09.Feb	5	97	27	21,7741935	0
Replicate 5	124	12.Feb	16	113	11	8,87096774	0
Replicate 5	124	15.Feb	5	118	6	4,83870968	0
Replicate 5	124	16.Feb	2	120	4	3,22580645	0
Replicate 5	124	19.Feb	4	124	0	0	0

GS-MHC/UASkuk with RU486

		I					
	N	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 1	65	20.Okt	0	0	65	100	0
Replicate 1	65	23.Okt	0	0	65	100	0
Replicate 1	65	26.Okt	1	1	64	98,46153846	0
Replicate 1	65	31.Okt	8	9	56	86,15384615	0
Replicate 1	65	03.Nov	4	13	52	80	0
Replicate 1	65	08.Nov	8	21	44	67,69230769	0
Replicate 1	65	10.Nov	14	35	30	46,15384615	0
Replicate 1	65	13.Nov	2	37	28	43,07692308	0
Replicate 1	65	15.Nov	3	40	25	38,46153846	0
Replicate 1	65	17.Nov	1	41	24	36,92307692	0
Replicate 1	65	20.Nov	5	46	19	29,23076923	0
Replicate 1	65	22.Nov	3	49	16	24,61538462	0
Replicate 1	65	24.Nov	2	51	14	21,53846154	0
Replicate 1	65	27.Nov	7	58	7	10,76923077	0
Replicate 1	65	29.Nov	4	62	3	4,615384615	0
Replicate 1	65	01.Dez	0	62	3	4,615384615	0
Replicate 1	65	04.Dez	1	63	2	3,076923077	0
Replicate 1	65	06.Dez	0	63	2	3,076923077	0
Replicate 1	65	08.Dez	1	64	1	1,538461538	0
Replicate 1	65	11.Dez	0	65	0	0	0

		II					
Replicate 2	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 2	75	29.Nov	0	0	75	100	0
Replicate 2	75	01.Dez	1	1	74	98,66666667	0
Replicate 2	75	06.Dez	2	3	72	96	0
Replicate 2	75	08.Dez	1	4	71	94,66666667	0
Replicate 2	75	11.Dez	3	7	68	90,66666667	0
Replicate 2	75	13.Dez	1	8	67	89,33333333	0
Replicate 2	75	15.Dez	4	12	63	84	0
Replicate 2	75	18.Dez	4	16	59	78,66666667	0
Replicate 2	75	20.Dez	3	19	56	74,66666667	0
Replicate 2	75	22.Dez	1	20	55	73,33333333	0
Replicate 2	75	25.Dez	9	29	46	61,33333333	0
Replicate 2	75	27.Dez	4	33	42	56	0
Replicate 2	75	29.Dez	4	37	38	50,66666667	0
Replicate 2	75	01.Jan	8	45	30	40	0
Replicate 2	75	03.Jan	8	53	22	29,33333333	0
Replicate 2	75	05.Jan	5	58	17	22,66666667	0
Replicate 2	75	08.Jan	9	67	8	10,66666667	0
Replicate 2	75	10.Jan	3	70	5	6,666666667	0
Replicate 2	75	12.Jan	4	74	1	1,333333333	0
Replicate 2	75	15.Jan	1	75	0	0	0

		III					
Replicate 3	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 3	81	03.Nov	0	0	81	100	0
Replicate 3	81	08.Nov	0	0	81	100	0
Replicate 3	81	10.Nov	6	6	75	92,59259259	0
Replicate 3	81	13.Nov	6	12	69	85,18518519	0
Replicate 3	81	15.Nov	5	17	64	79,01234568	0
Replicate 3	81	17.Nov	2	19	62	76,54320988	0
Replicate 3	81	20.Nov	5	24	57	70,37037037	0
Replicate 3	81	22.Nov	1	25	56	69,13580247	0
Replicate 3	81	24.Nov	1	26	55	67,90123457	0
Replicate 3	81	27.Nov	2	28	53	65,43209877	0
Replicate 3	81	29.Nov	2	30	51	62,96296296	0
Replicate 3	81	01.Dez	0	30	51	62,96296296	0
Replicate 3	81	04.Dez	0	30	51	62,96296296	0
Replicate 3	81	06.Dez	2	32	49	60,49382716	0
Replicate 3	81	08.Dez	5	37	44	54,32098765	0
Replicate 3	81	11.Dez	2	39	42	51,85185185	0
Replicate 3	81	13.Dez	0	40	41	50,61728395	0
Replicate 3	81	15.Dez	4	44	37	45,67901235	0
Replicate 3	81	18.Dez	7	51	30	37,03703704	0
Replicate 3	81	20.Dez	4	55	26	32,09876543	0
Replicate 3	81	22.Dez	4	59	22	27,16049383	0
Replicate 3	81	25.Dez	10	69	12	14,81481481	0
Replicate 3	81	27.Dez	5	74	7	8,641975309	0
Replicate 3	81	29.Dez	4	78	3	3,703703704	0
Replicate 3	81	01.Jan	3	81	0	0	0

		IV					
Replicate 4	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 4	169	06.Dez	0	0	169	100	0
Replicate 4	169	08.Dez	2	2	167	98,81656805	0
Replicate 4	169	11.Dez	1	3	166	98,22485207	0
Replicate 4	169	13.Dez	0	3	166	98,22485207	0
Replicate 4	169	15.Dez	1	4	165	97,63313609	0
Replicate 4	169	18.Dez	1	5	164	97,04142012	0
Replicate 4	169	20.Dez	1	6	163	96,44970414	0
Replicate 4	169	22.Dez	4	10	159	94,08284024	0
Replicate 4	169	25.Dez	6	16	153	90,53254438	0
Replicate 4	169	27.Dez	9	25	144	85,20710059	0
Replicate 4	169	29.Dez	9	34	135	79,8816568	0
Replicate 4	169	01.Jan	11	45	124	73,37278107	0
Replicate 4	169	03.Jan	7	52	117	69,23076923	0
Replicate 4	169	05.Jan	8	60	109	64,49704142	0
Replicate 4	169	08.Jan	20	80	89	52,66272189	0
Replicate 4	169	10.Jan	12	92	77	45,56213018	0
Replicate 4	169	12.Jan	5	97	72	42,6035503	0
Replicate 4	169	15.Jan	23	120	49	28,99408284	0
Replicate 4	169	17.Jan	4	124	45	26,62721893	0
Replicate 4	169	19.Jan	15	139	30	17,75147929	0
Replicate 4	169	22.Jan	22	161	8	4,733727811	0
Replicate 4	169	24.Jan	2	163	6	3,550295858	0
Replicate 4	169	26.Jan	0	163	6	3,550295858	0
Replicate 4	169	29.Jan	2	165	4	2,366863905	0
Replicate 4	169	31.Jan	1	166	3	1,775147929	0
Replicate 4	169	02.Feb	3	169	0	0	0

		V					
Replicate 5	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 5	208	06.Dez	0	0	208	100	0
Replicate 5	208	08.Dez	1	1	207	99,51923077	0
Replicate 5	208	11.Dez	2	3	205	98,55769231	0
Replicate 5	208	13.Dez	1	4	204	98,07692308	0
Replicate 5	208	15.Dez	0	4	204	98,07692308	0
Replicate 5	208	18.Dez	2	6	202	97,11538462	0
Replicate 5	208	20.Dez	1	7	201	96,63461538	0
Replicate 5	208	22.Dez	1	8	200	96,15384615	0
Replicate 5	208	25.Dez	11	19	189	90,86538462	0
Replicate 5	208	27.Dez	19	38	170	81,73076923	0
Replicate 5	208	29.Dez	10	48	160	76,92307692	0
Replicate 5	208	01.Jan	8	56	152	73,07692308	0
Replicate 5	208	03.Jan	3	59	149	71,63461538	0
Replicate 5	208	05.Jan	4	63	145	69,71153846	0
Replicate 5	208	08.Jan	15	78	130	62,5	0
Replicate 5	208	10.Jan	3	81	127	61,05769231	0
Replicate 5	208	12.Jan	13	94	114	54,80769231	0
Replicate 5	208	15.Jan	12	106	102	49,03846154	0
Replicate 5	208	17.Jan	9	115	93	44,71153846	0
Replicate 5	208	19.Jan	19	134	74	35,57692308	0
Replicate 5	208	22.Jan	34	168	40	19,23076923	0
Replicate 5	208	24.Jan	23	191	17	8,173076923	0
Replicate 5	208	26.Jan	14	205	3	1,442307692	0
Replicate 5	208	29.Jan	1	206	2	0,961538462	0
Replicate 5	208	31.Jan	0	206	2	0,961538462	0
Replicate 5	208	02.Feb	2	208	0	0	0

		VI					
Replicate 6	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 6	75	29.Nov	0	0	75	100	0
Replicate 6	75	01.Dez	1	1	74	98,66666667	0
Replicate 6	75	04.Dez	0	1	74	98,66666667	0
Replicate 6	75	06.Dez	2	3	72	96	0
Replicate 6	75	08.Dez	1	4	71	94,66666667	0
Replicate 6	75	11.Dez	3	7	68	90,66666667	0
Replicate 6	75	13.Dez	1	8	67	89,33333333	0
Replicate 6	75	15.Dez	4	12	63	84	0
Replicate 6	75	18.Dez	4	16	59	78,66666667	0
Replicate 6	75	20.Dez	3	19	56	74,66666667	0
Replicate 6	75	22.Dez	1	20	55	73,33333333	0
Replicate 6	75	25.Dez	9	29	46	61,33333333	0
Replicate 6	75	27.Dez	4	33	42	56	0
Replicate 6	75	29.Dez	4	37	38	50,66666667	0
Replicate 6	75	01.Jan	8	45	30	40	0
Replicate 6	75	03.Jan	8	53	22	29,33333333	0
Replicate 6	75	05.Jan	5	58	17	22,66666667	0
Replicate 6	75	08.Jan	9	67	8	10,66666667	0
Replicate 6	75	10.Jan	3	70	5	6,666666667	0
Replicate 6	75	12.Jan	4	74	1	1,333333333	0
Replicate 6	75	15.Jan	1	75	0	0	0

		VII					
Replicate 7	**N**	**Age-interval**	**dx**	**totaled numb**	**Nx**	**% Survivor**	**cx**
Replicate 7	138	18.Dez	0	0	138	100	0
Replicate 7	138	20.Dez	0	0	138	100	0
Replicate 7	138	22.Dez	1	1	137	99,27536232	0
Replicate 7	138	25.Dez	1	2	136	98,55072464	0
Replicate 7	138	27.Dez	2	4	134	97,10144928	0
Replicate 7	138	29.Dez	4	8	130	94,20289855	0
Replicate 7	138	01.Jan	4	12	126	91,30434783	0
Replicate 7	138	03.Jan	7	19	119	86,23188406	0
Replicate 7	138	05.Jan	8	27	111	80,43478261	0
Replicate 7	138	08.Jan	15	42	96	69,56521739	0
Replicate 7	138	10.Jan	8	50	88	63,76811594	0
Replicate 7	138	12.Jan	6	56	82	59,42028986	0
Replicate 7	138	15.Jan	10	66	72	52,17391304	0
Replicate 7	138	17.Jan	10	76	62	44,92753623	0
Replicate 7	138	19.Jan	9	85	53	38,4057971	0
Replicate 7	138	22.Jan	10	95	43	31,15942029	0
Replicate 7	138	24.Jan	9	104	34	24,63768116	0
Replicate 7	138	26.Jan	7	111	27	19,56521739	0
Replicate 7	138	29.Jan	12	123	15	10,86956522	0
Replicate 7	138	31.Jan	2	125	13	9,420289855	0
Replicate 7	138	02.Feb	5	130	8	5,797101449	0
Replicate 7	138	05.Feb	7	137	1	0,724637681	0
Replicate 7	138	07.Feb	0	137	1	0,724637681	0
Replicate 7	138	09.Feb	1	138	0	0	0

Supplementary table 2

					Slopes				Y- intercepts			
Genotype		**Slope**	**Y -intercept**	**r2**	**F**	**DFn**	**DFd**	**P**	**F**	**DFn**	**DFd**	**P**
UASlamin B/GS-MHC	control	0,03636 ± 0,005826	-2,743 ± 0,2791	0,672	0,071	1	41	0,7	16,1550	1	42	0,0002**
	induced	0,03460 ± 0,003479	-2,212 ± 0,1362	0,818								
UASlamin B/GS-S1 106	control	0,02693 ± 0,002993	-2,375 ± 0,1424	0,729	8,524	1	48	0,005*				
	induced	0,04540 ± 0,005543	-2,386 ± 0,1866	0,788								
UASlamin B/GS-elav	control	0,02434 ± 0,002475	-2,346 ± 0,1196	0,769	0,170	1	56	0,6	6,2446	1	57	0,01*
	induced	0,02581 ± 0,002534	-2,226 ± 0,1158	0,793								
UASkuk/GS-MHC	control	0,03812 ± 0,002499	-0.2547 ± 0.1015	0,481	2,131	1	47	0,1	4,1125	1	48	0,04*
	induced	0,03514 ± 0,002047	-0.3187 ± 0.1141	0,600								
UASkuk/GS-S1 106	control	0,005165 ± 0,0009540	-0,1194 ± 0,04508	0,511	0,737	1	55	0,3	0,3695	1	56	0,5457
	induced	0,004150 ± 0,0006727	-0,09168 ± 0,03087	0,585								
UASkuk/GS-elav	control	0,03257 ± 0,002437	-2,341 ± 0,1031	0,885	0,874	1	50	0,3	1,9524	1	51	0,1679
	induced	0,02905 ± 0,002718	-2.304 ± 0.1247	0,808								