Legends to Supplemental Figures.

Supplemental Figure 1.
Generation of Birc7 conditional Knockout mice. The targeting vector (BAC:RP24-292D5) was constructed using recombineering methods. One LoxP site was inserted 810 bp downstream of exon 1 and then a LoxP flanked SV40-driven Neo cassette was inserted 46 bp downstream of exon 6. The construct contained a 5’ homology arm, which starts at 2463 bp upstream of exon 1 and is 3764 bp in length; a conditional arm which starts 810 bps downstream of exon 1 and is 3020 bp in length; and a 3’ arm that starts 46 bps downstream of exon 6 and is 3943 bps in length, see Figure below.

Eight-cell embryos undergoing compaction were collected from C57/BL6J females on embryonic day 2.5 and incubated for 24 h until they reached the blastocyst stage. At this point ES cells carrying the Birc7 flox/flox construct were injected into each blastocyst. Injected blastocysts were surgically reimplanted into recipient ICR females. Two chimeric mice, identified by coat color, were obtained and crossed with C57/BL6 wildtypes.

To genotype Birc7 flox/flox the following primers were used: 5’LoxP site forward 5’AGGATTTCTTCAGGGATGCCCAGT 3’, reverse 5’ ACATGGACACCTCTCTTGCCTCAA; 3’LoxP site forward 5’AAGGATGTTCAGGAACAGCTGCGA 3’, reverse 5’ TGGTTTCAGGGACTCTTGGACCT3’.

Supplemental Figure 2.
Histological analysis of lenses in which the Birc7 gene is conditionally knocked out using the LeCre transgene. A. The lens has a normal cellular architecture in wild type mice. B. In some instances the presence of the LeCre transgene had no discernible effect on lens histology. C. However, in a significant fraction of mice carrying the hemizygous LeCre transgene, cortical fiber cells were disrupted. D. Most mice hemizygous for the floxed Birc7 allele showed a disrupted lens phenotype. E and F. In mice homozygous for the floxed Birc7 allele, lens structure was invariably disrupted with phenotypes ranging from a disturbed cortical fiber layer (E) to complete liquefaction of the lens core (F).

Supplemental Figure 3.
In the presence of Birc7 flox/flox the LeCre and MLR10 transgenes both efficiently disrupt Livin protein production in the lens. In lenses from wild type animals (left panel) Livin immunofluorescence (arrow) is evident in nucleated fibers located in the deep cortical region. Note that Livin immunofluorescence is not detected in the conditional knockout lenses (center and right panels).
Supplemental Figure 4.
Histological analysis of wild type lenses and lenses from conditional knockouts generated using the MLR10 transgene. Histologically, the various phenotypes were indistinguishable.