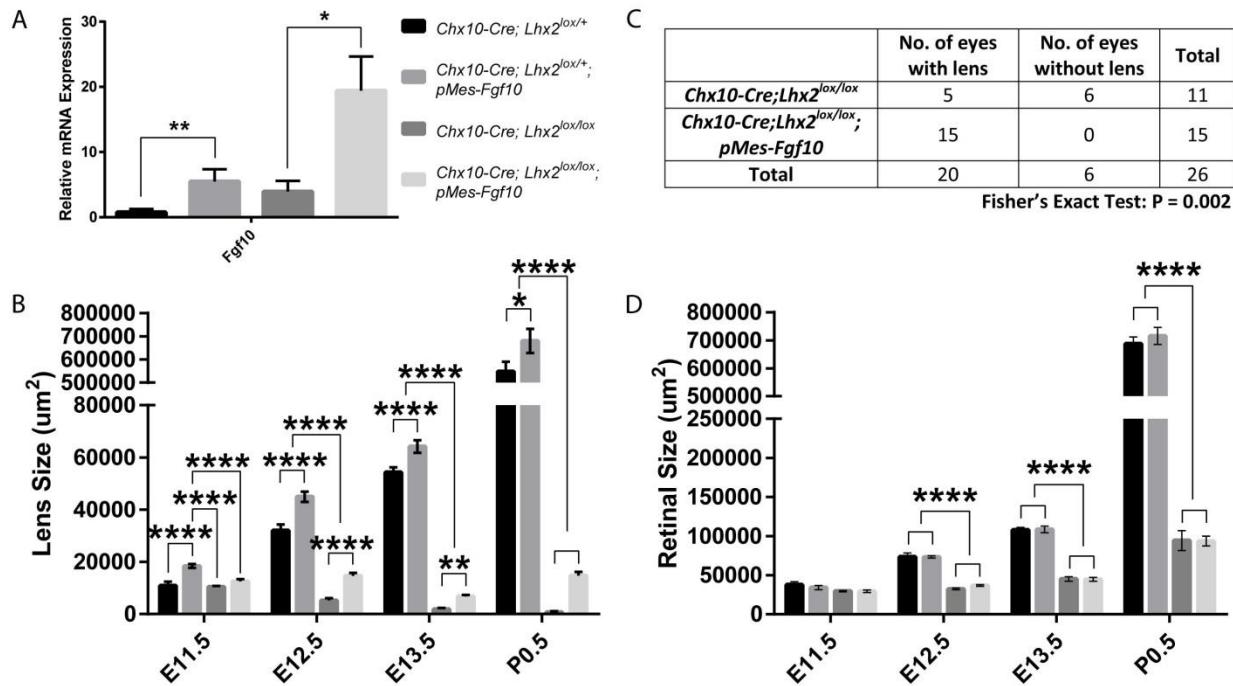
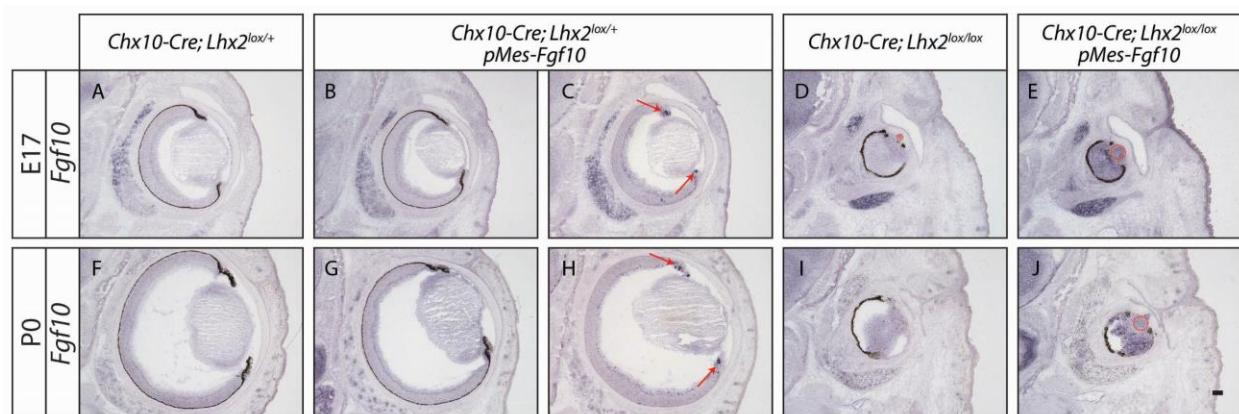


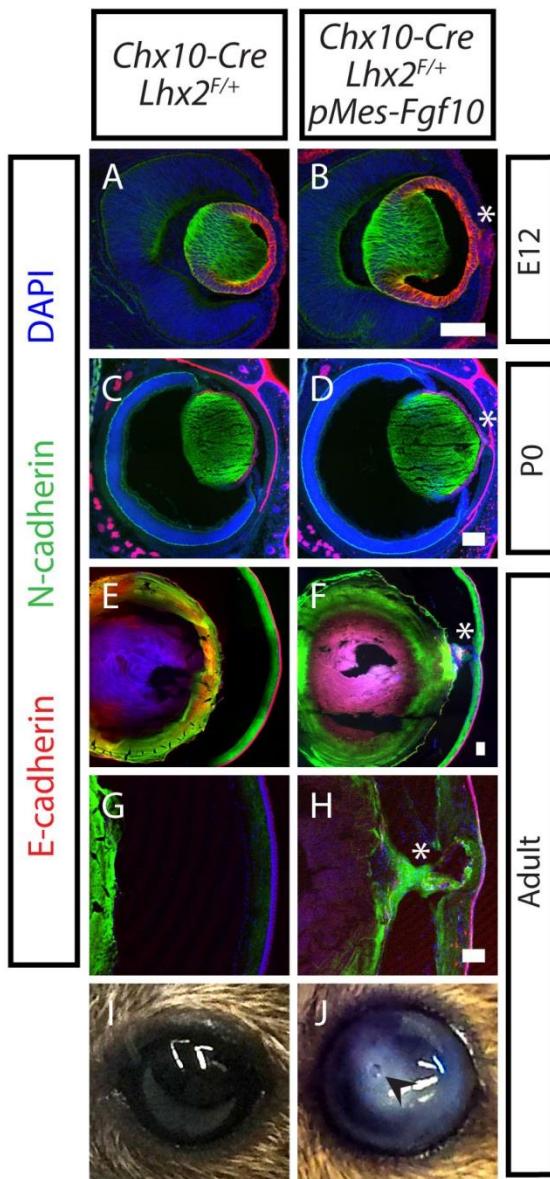
Supplemental Figure 1: Chx10-Cre is selectively active in the retina and eliminates Lhx2 expression in *Chx10-Cre;Lhx2^{lox/lox}* retinas. (A – D) Immunostaining for dsRed (red) to detect tdTomato expression in E10.5 – E13.5 *Chx10-Cre;Ai9* eye sections. (E – L) Immunostaining of *Chx10-Cre;Lhx2^{lox/+}* (E – H) and *Chx10-Cre;Lhx2^{lox/lox}* eye sections (I – L) for Lhx2 (red) and Pax6 (green). Nuclei are counter-stained with DAPI (blue). (Scale Bars: 100 μm)



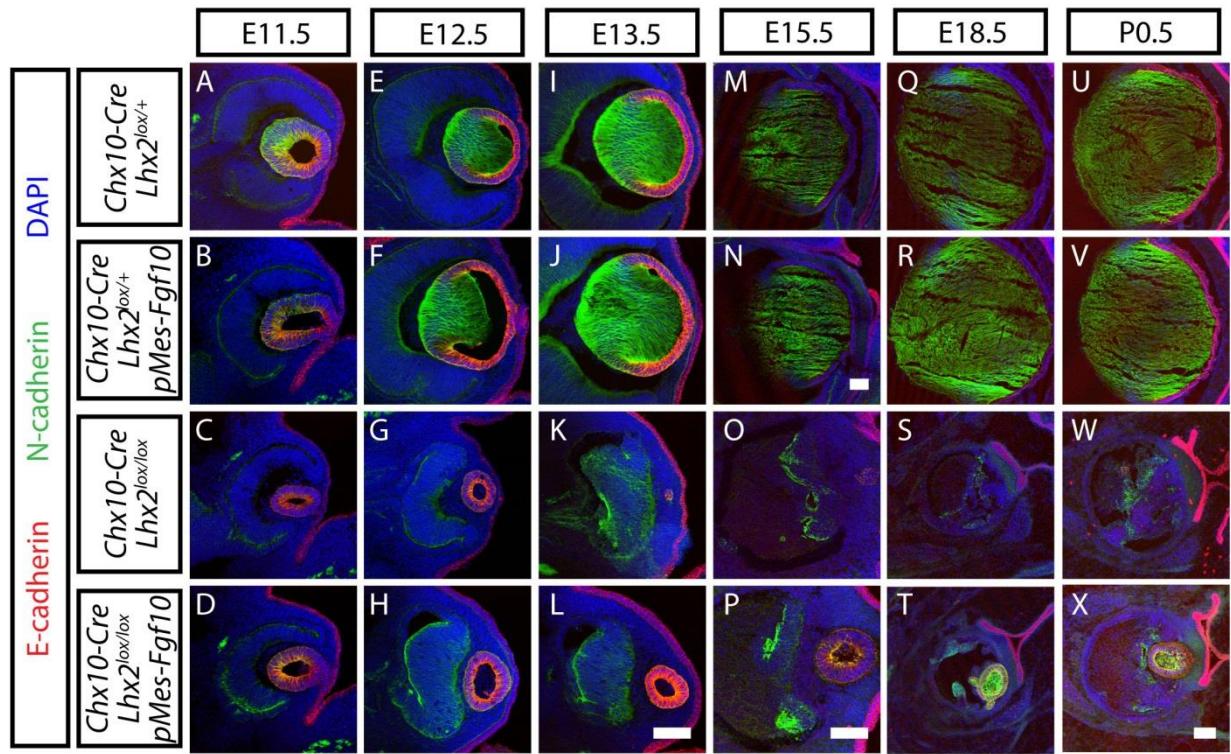
Supplemental Figure 2: Overexpression of *Fgf10* led to significant increase in lens, but not retinal, size. (A) Real-time quantitative PCR analysis shows induction of *Fgf10* mRNA expressions in *pMes-Fgf10* retinas. Data represent mean normalized to *Gapdh* values \pm SEM. (Unpaired two-tailed t-test; n = 3; *P<0.05; **P<0.01) (B) Graph indicating the average lens size of *Chx10-Cre; Lhx2^{lox/+}*, *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10*, *Chx10-Cre; Lhx2^{lox/lox}* and *Chx10-Cre; Lhx2^{lox/lox}; pMes-Fgf10* animals at E11.5, E12.5, E13.5 and P0.5. (C) Contingency table depicting the number of eyes with or without detectable lenses at P0.5 for *Chx10-Cre; Lhx2^{lox/lox}* and *Chx10-Cre; Lhx2^{lox/lox}; pMes-Fgf10* animals. Eye sections immunostained for Prox1 and β -Crystallin were used in this analysis. (D) Graph indicating average retinal area of *Chx10-Cre; Lhx2^{lox/+}*, *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10*, *Chx10-Cre; Lhx2^{lox/lox}* and *Chx10-Cre; Lhx2^{lox/lox}; pMes-Fgf10* animals at E11.5, E12.5, E13.5 and P0.5. (One-way ANOVA followed by post hoc Tukey's test; n \geq 4 for E11.5; n \geq 9 for E12.5; n \geq 6 for E13.5; n \geq 7 for P0.5; *P<0.05; **P<0.01; ****P<0.0001; Error bars indicate SEM)



Supplemental Figure 3: Cre-mediated induction of *Fgf10* expression in *Chx10-Cre;Lhx2^{lox/+} pMes-Fgf10* retinas at later developmental stages. *In situ* hybridization analysis of *Fgf10* mRNA expression levels at E17 (A – E) and P0 (F – J). Sections from non-pigmented eyes were included in C and H to show the expression of *Fgf10* in peripheral neuroretina in *Chx10-Cre;Lhx2^{lox/+} pMes-Fgf10* eyes (red arrows). Dotted red circles mark the lenses (D, E and J). (Scale Bars: 100 μm)



Supplemental Figure 4: *Fgf10* overexpression in control background led to tethering of lens to the cornea. (A – H) Eye sections of *Chx10-Cre; Lhx2^{lox/+}* and *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10* animals immunostained with E-cadherin (red) and N-cadherin (green). Nuclei are counter-stained with DAPI (blue). White asterisks indicate persistent lens stalks seen in *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10* eyes (B, D, F and H). (I and J) External eye photos showing cornea opacification observed in some *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10* animals (J). The anchor point of the lens stalk in the *Chx10-Cre; Lhx2^{lox/+}; pMes-Fgf10* animal could be detected in the image (J; black notched arrowhead).



Supplemental Figure 5: *Chx10-Cre;Lhx2*^{lox/+};*pMes-Fgf10* rescue animals expressed lens epithelial cell marker E-cadherin and the lens fiber cell marker N-cadherin. Developmental time-course of immunohistochemistry for N-cadherin (green) and E-cadherin (red) expression in lenses at E11.5 (A – D), E12.5 (E – H), E13.5 (I – L), E15.5 (M – P), E18.5 (Q – T) and P0.5 (U – X) of *Chx10-Cre;Lhx2*^{lox/+} (A, E, I, M, Q, U), *Chx10-Cre;Lhx2*^{lox/+};*pMes-Fgf10* (B, F, J, N, R, V), *Chx10-Cre;Lhx2*^{lox/lox} (C, G, K, O, S, W) and *Chx10-Cre;Lhx2*^{lox/lox};*pMes-Fgf10* animals (D, H, L, P, T, X). Nuclei are counter-stained with DAPI (blue). (Scale Bars: 100 μ m)