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Appendix Supplementary Figure Legends:

Appendix Figure S1. Rare PtenΔ/Δ tumor areas suspicious for invasion.
A) Representative histological image of an area suspicious for invasion. (scale bar = 500um)
B) Higher power magnification of in situ tumor most commonly seen in these prostates. (scale bar = 100um)
C) Small nests of tumor cells within stroma display paradoxical increased cell cytoplasm and lack of basement membrane and basal cell layer, consistent with invasion per consensus criteria [1]. (scale bar = 100um)

Appendix Figure S2. Tumor progression is still inhibited after one year.
Representative histological images from one year old wild type and PtenΔ/Δ Dgcr8Δ/Δ double knockout prostates show that tumor progression is still halted at hyperplasia. (scale bar = 500um, insets = 100um)

Appendix Figure S3. Dgcr8 is required for PtenΔ/Δ mediated basal cell expansion.
Immunofluorescence analysis of basal (CK5) and luminal (CK8) cell populations demonstrated an increased CK5-positive population in PtenΔ/Δ which are not found in PtenΔ/Δ;Dgcr8Δ/Δ prostates. Nuclei are stained with the DNA dye ToPro3. Individual confocal channels are shown to clarify the extent of CK5 and CK8 expansion. Note that Dgcr8Δ/Δ appear the same as wild type indicating that loss of DGCR8 does not itself impact number or location of CK5 or CK8 positive cells.

Appendix Figure S5. Representative confocal images of apoptosis marker cleaved caspase 3 (green) with nuclei labeled blue. Specific staining indicated by the arrow in each panel. (scale bar = 100um).

Appendix Figure S4. Model for role of miRNAs in tumor progression following loss of PTEN.
Our data supports a model of prostate tumor progression following the loss of Pten activity whereby the initial stages of tumor growth and development of hyperplasia proceeds in a microRNA independent manner. However the progression of these tumors to the dysplastic phenotype requires DGCR8-dependent microRNA biogenesis.
Appendix References

Appendix Figure S1

$Pten^{AA}$
Appendix Figure S2

Wild Type

\( \text{Pten}^{\Delta/\Delta}, \text{Dgcr8}^{\Delta/\Delta} \)
Appendix Figure S3

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<th>Dgcr\textsuperscript{Δ/Δ}</th>
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### Appendix Figure S4

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Appendix Figure S5

PTEN loss → miRNA independent → Hyperplasia → miRNA dependent → Dysplasia