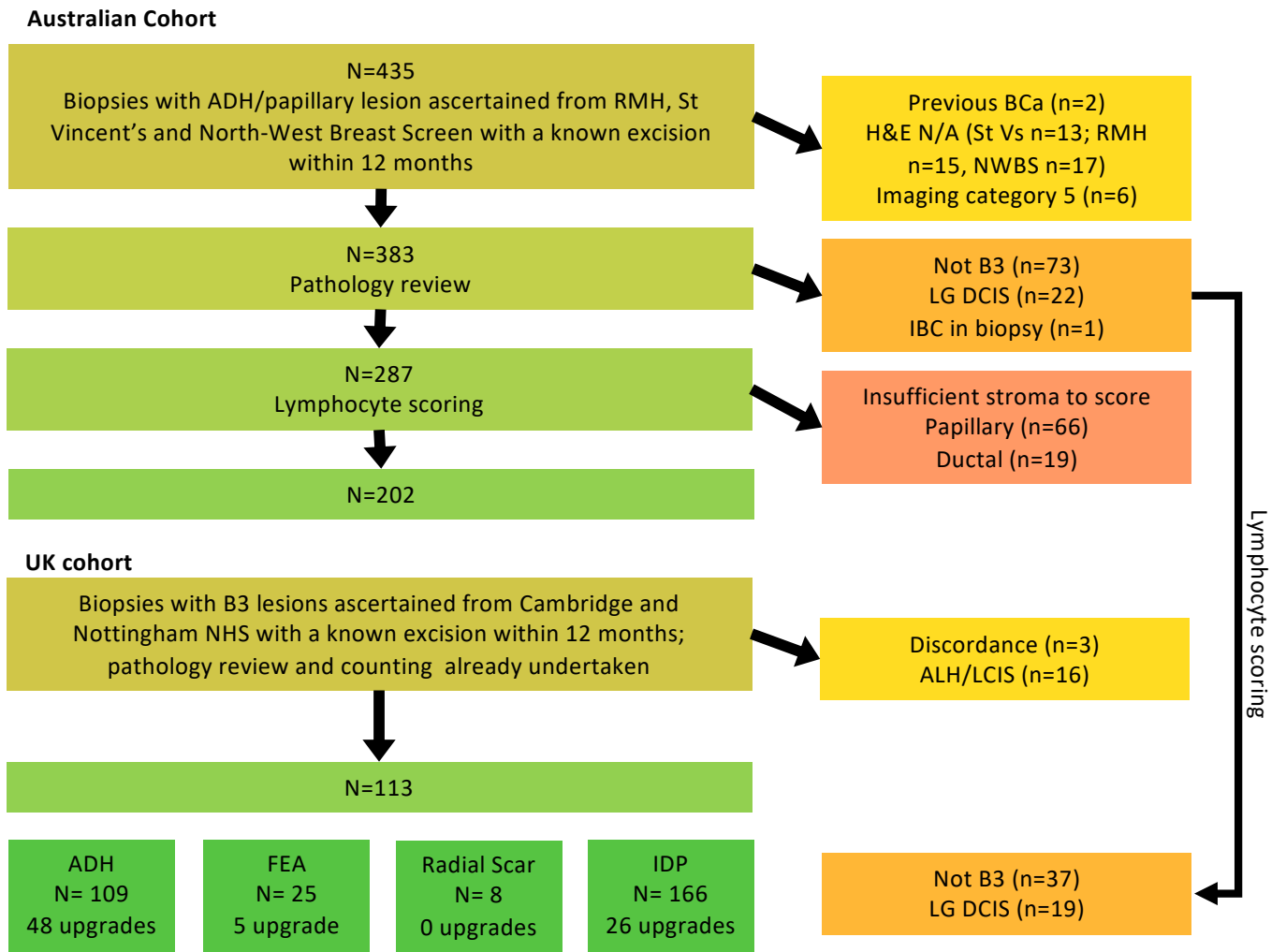
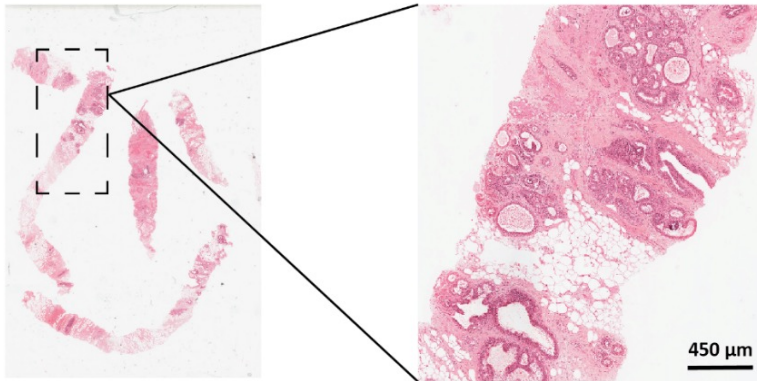


Supplementary Figure 1. Case inclusion and exclusion

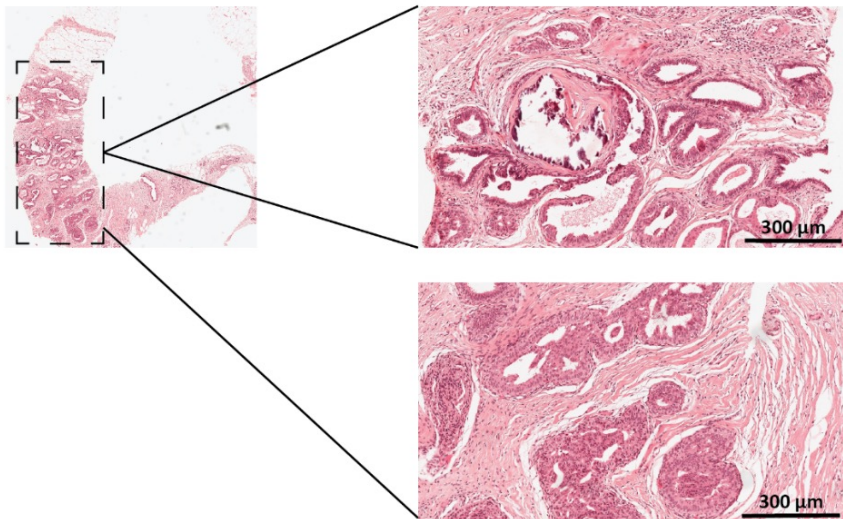


Supplementary Figure 2. Examples of other ductal lesions that were not confirmed as ADH. These ductal lesions include radial scar, columnar cell change (CCL), flat epithelial atypia (FEA) or usual ductal hyperplasia (UDH).

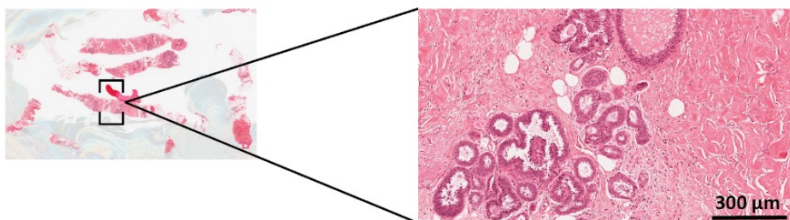
Case SV36: Radial Scar



Case SV32: Columnar cell change (CCL), usual ductal hyperplasia (UDH)

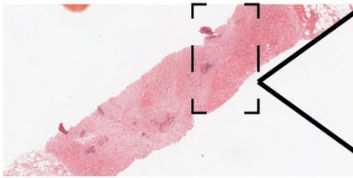


Case SV73: Flat epithelial atypia (FEA)

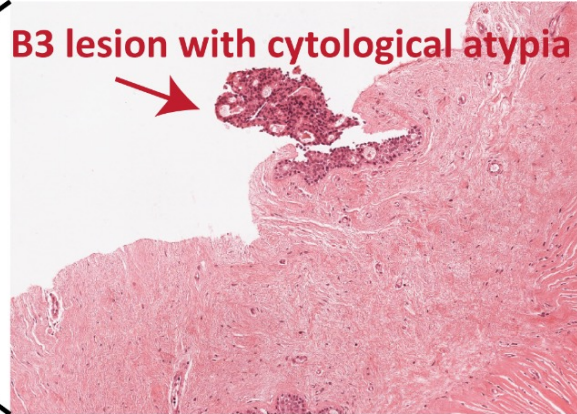


Supplementary Figure 3. Examples of excluded cases from analysis due to lack of specialised stroma in biopsies.

SV70: Core biopsy

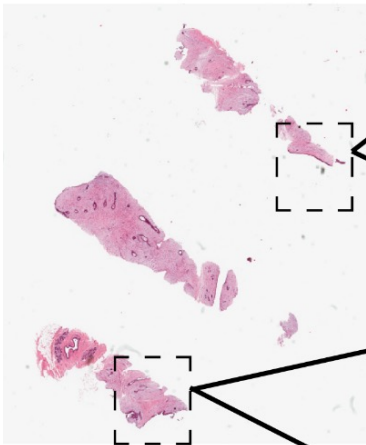


B3 lesion with cytological atypia

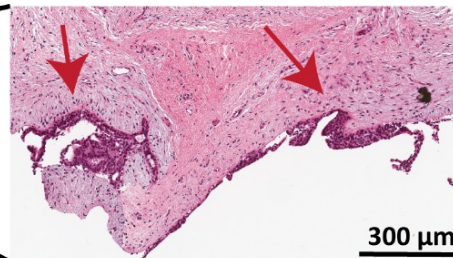
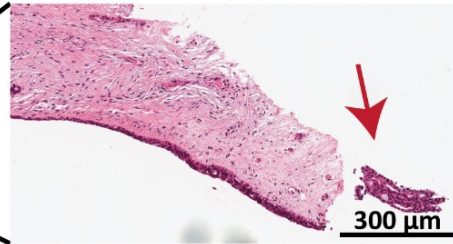


SV70: Excluded from lymphocyte counts:
lack of specialised stroma

SV85: Core biopsy

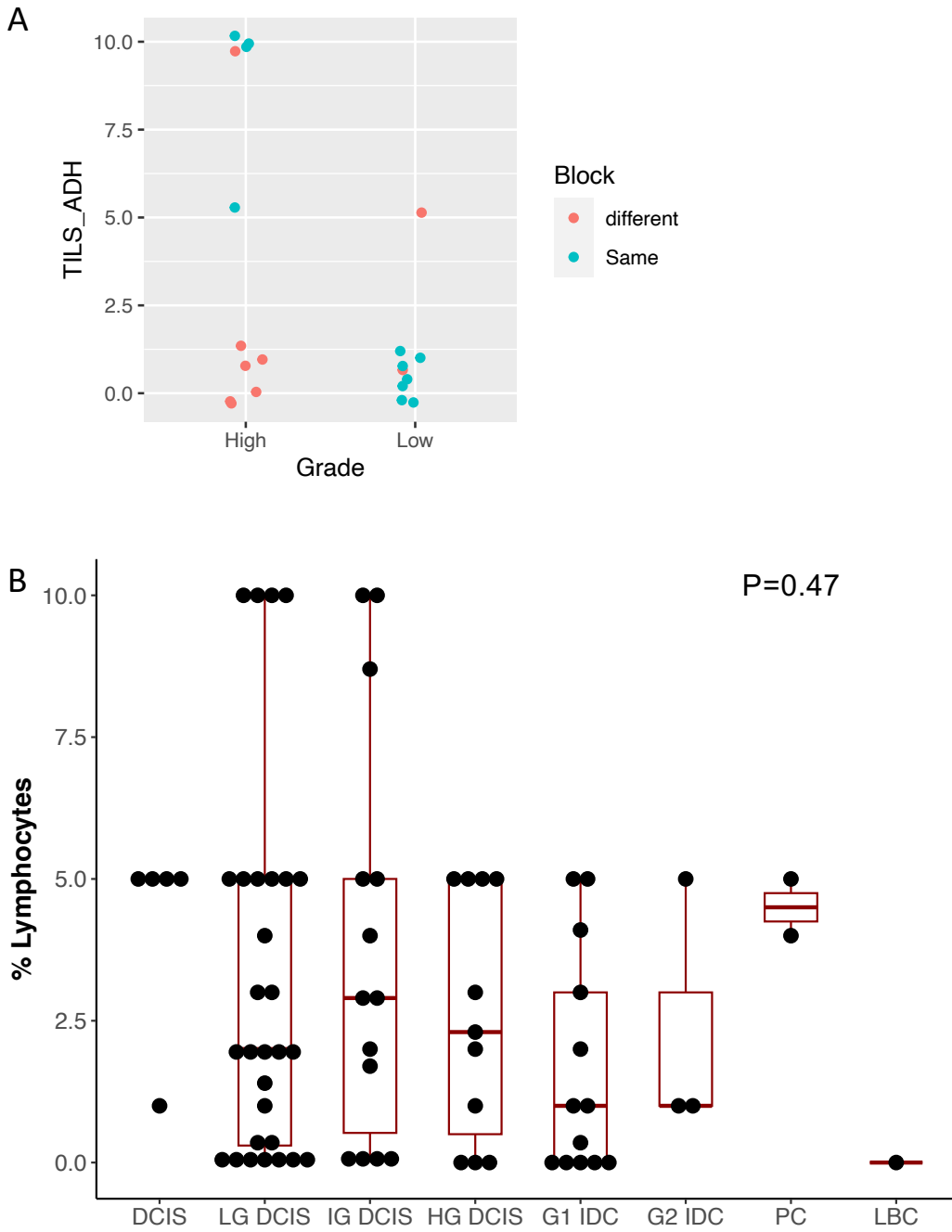


Fibroadenoma with UDH

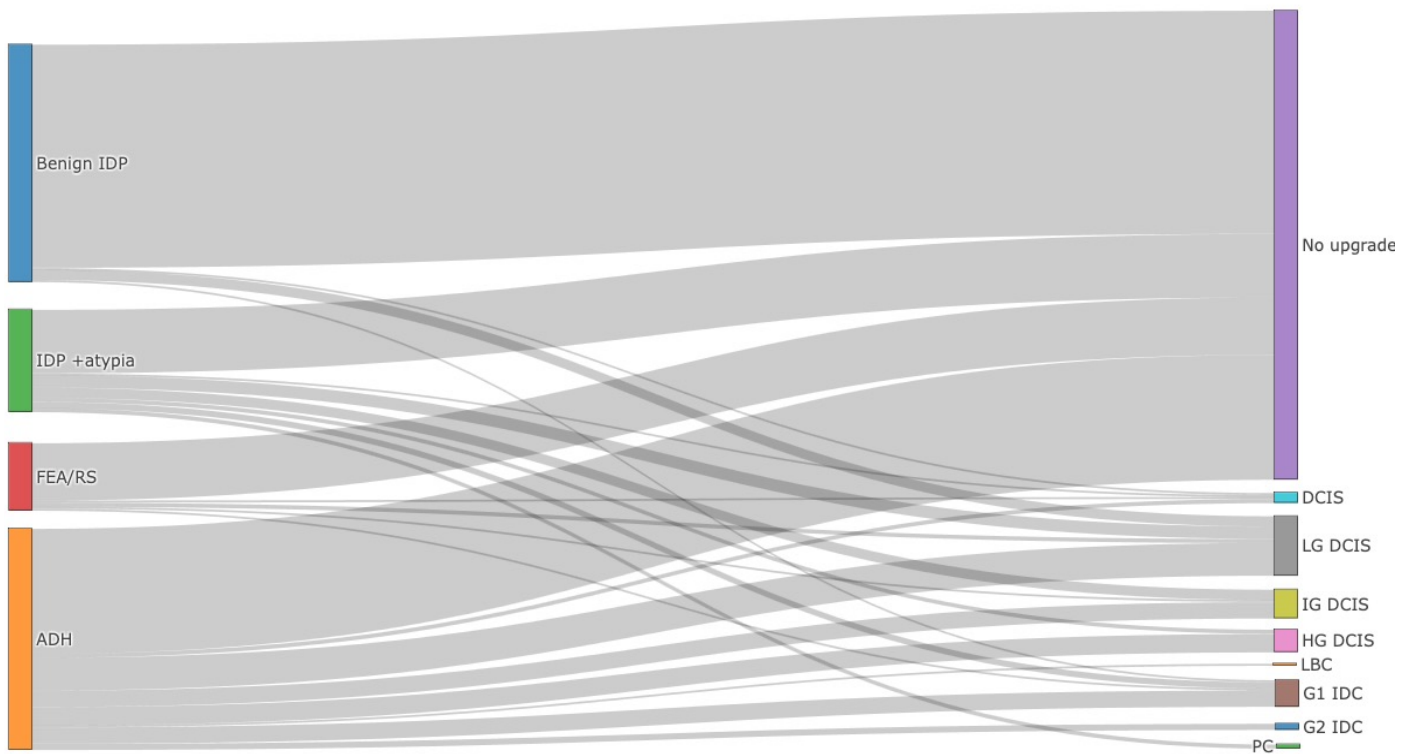


SV85: Excluded from lymphocyte counts:
lack of specialised stroma

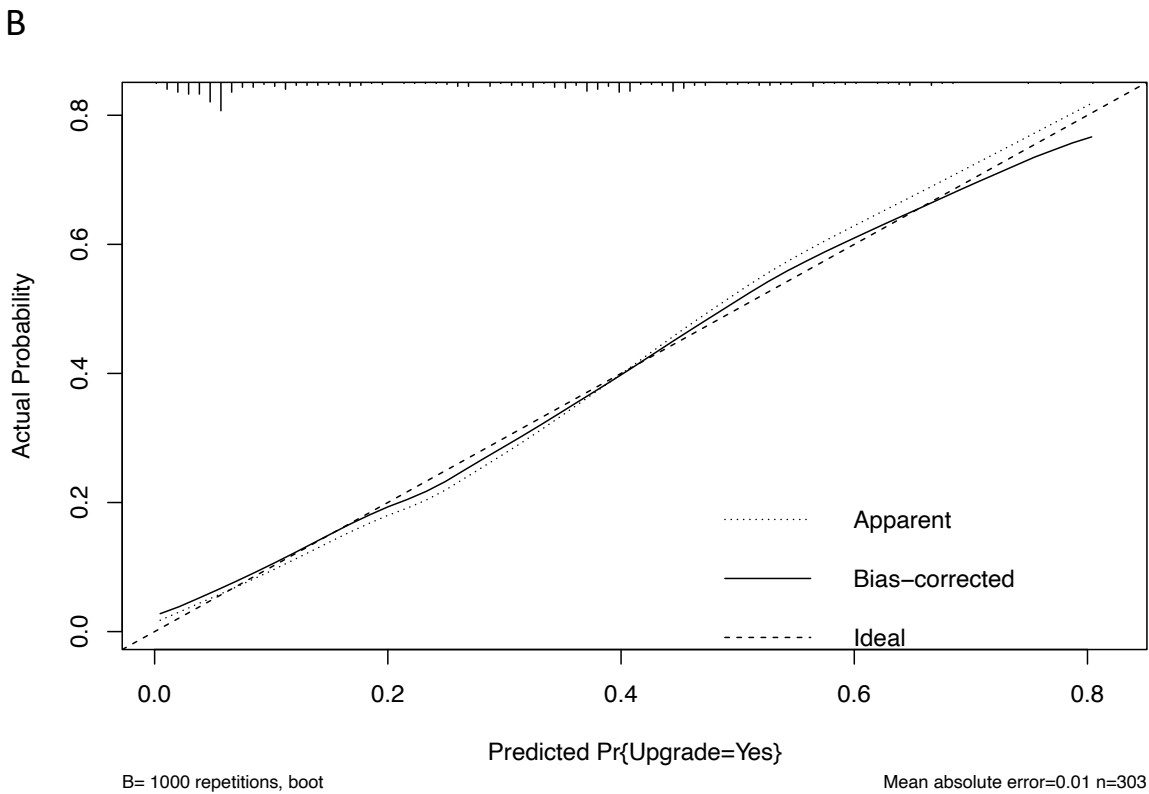
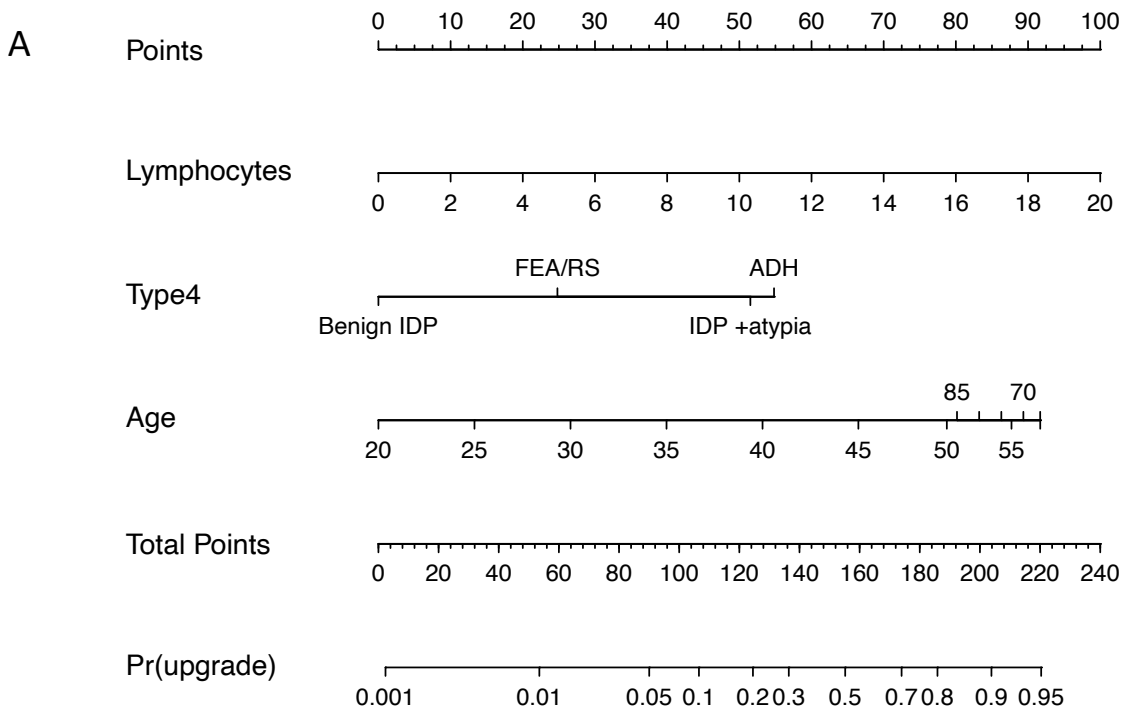
Supplementary Figure 4. Grade of carcinoma and lymphocyte associations. A. ADH synchronous with high grade carcinoma is more likely to have high lymphocytes when found in the same block. **B.** Breakdown of grade of upgrade related to lymphocytes



Supplementary Figure 5. Sankey plot showing type of lesion in the biopsy at left, with the outcome of the excision at right



Supplementary Figure 6. A. Nomogram for model to predict upgrade. B. Internal calibration plot of model



Supplementary Figure 7. Selection of a threshold for lymphocytes

