Tumor-infiltrating lymphocytes (TILs) found elevated in lung adenocarcinomas (LUAD) using automated digital pathology masks derived from deep-learning models

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RESULTS

- LUAD and LUSC were highly classifiable using this system, with a ROC AUC of 0.95 and accuracy of 0.86 in test samples.
- The total tumor tissue area was similar between LUAD and LUSC (47.3% vs. 45.9%).
- Whole-slide lymphocyte level was similar although slightly lower in LUAD (9.9% vs. 11.2%).
- However, lymphocytes in LUAD samples were more likely to infiltrate tumor regions than those in LUSC (47.9% vs. 42.5%), and were immediately adjacent to tumor regions (78.1% vs. 73.8%).
- Lymphocyte levels were more bimodal in LUAD than LUSC, with 28.6% (vs. 22.9%) having very high TIL (>60%) despite having lower overall lymphocyte counts.

CONCLUSIONS

- Despite lower overall TMB and lymphocyte levels, there exists a subset of LUAD samples with very high infiltrating lymphocyte counts, indicating a potentially anti-PD1-sensitive subpopulation. Further characterizing this subset and confirming differential 3D response is warranted.

REFERENCES


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