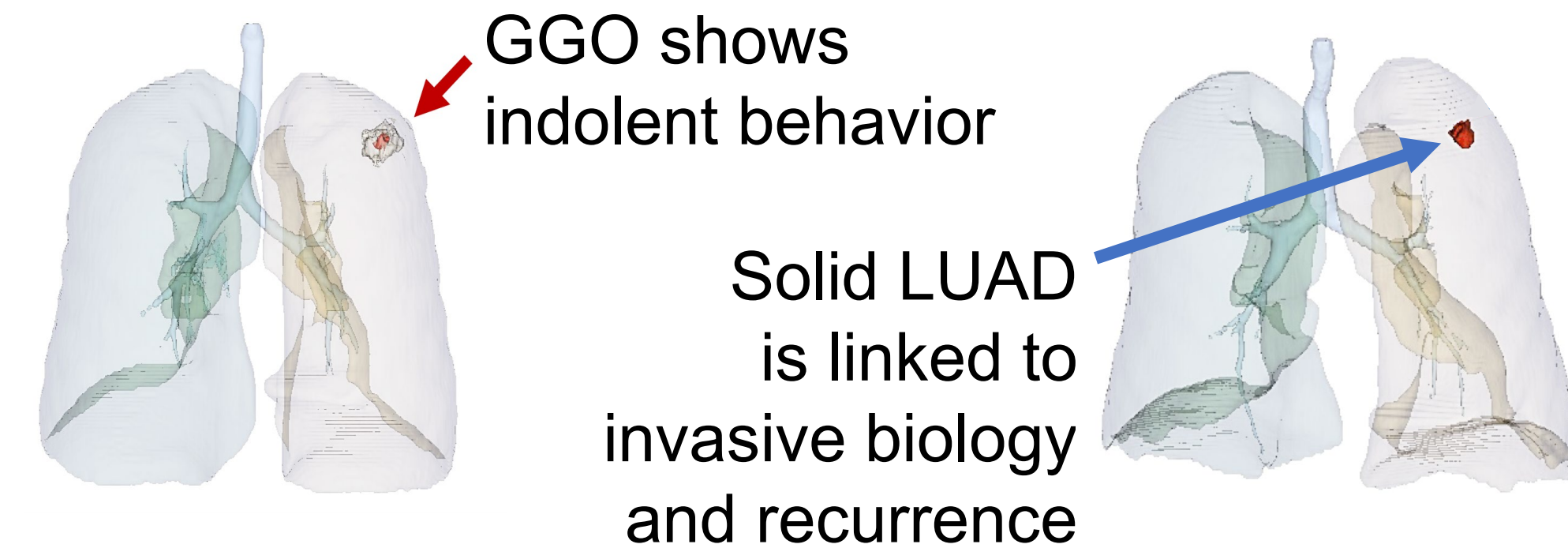


INTRODUCTION

Background

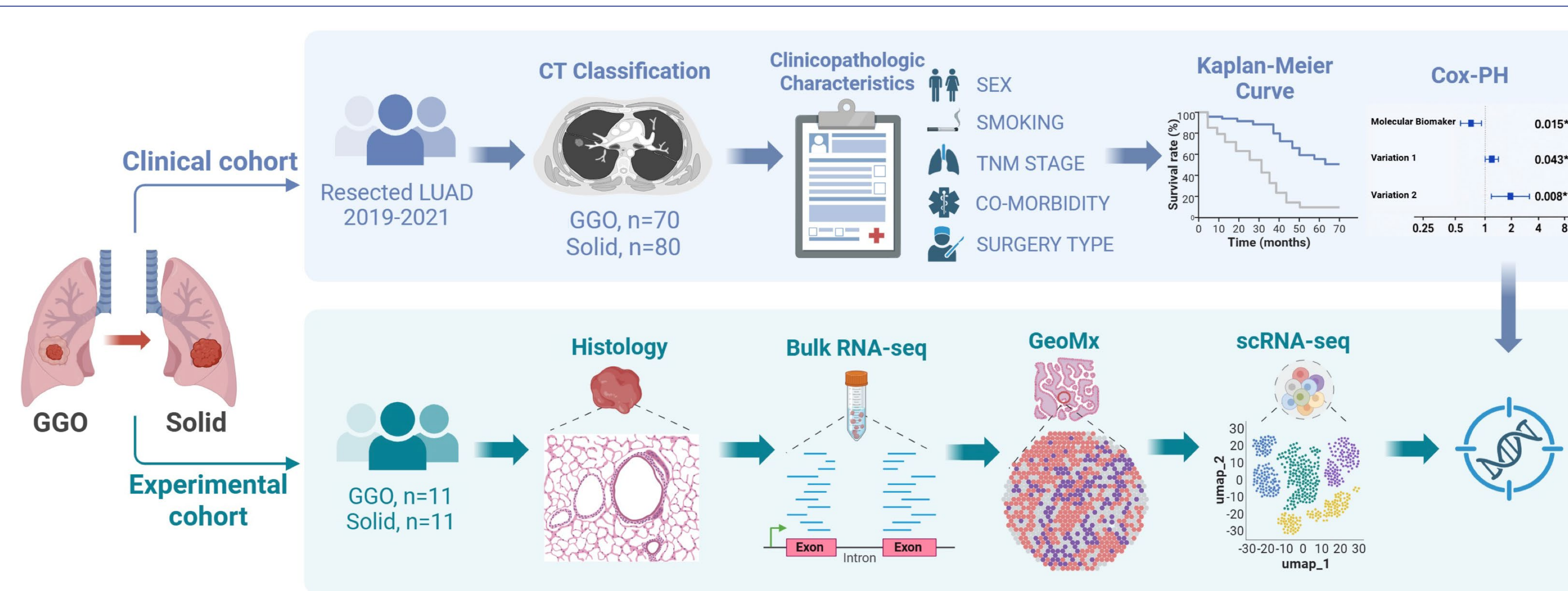


However, its molecular basis remains unclear.

Hypothesis

- Transition from GGO to solid LUAD reflects **loss of differentiated epithelial identity** and coordinated **immune microenvironment remodeling**.

METHODS



REFERENCES & ACKNOWLEDGEMENTS

Key references

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- Chen et al. Am J Respir Crit Care Med. 2021;204:1180-1192.
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- Ban et al. Nat Cancer. 2021;2:919-931.
- De Zuani et al. Nat Commun. 2024;15:4388.

Acknowledgements

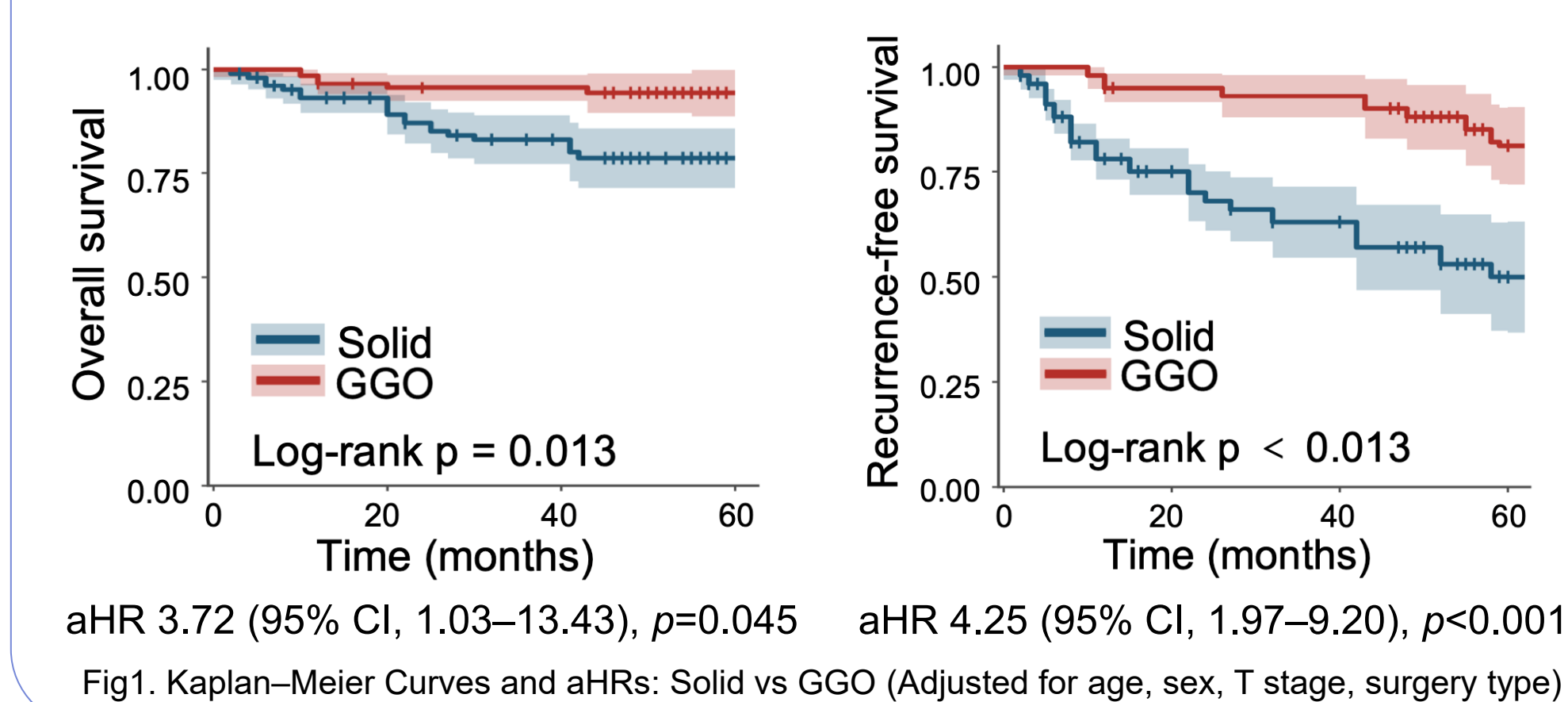
Discussion and Conclusion figure was created with BioRender.com.

Artificial Intelligence (AI) Use Disclaimer

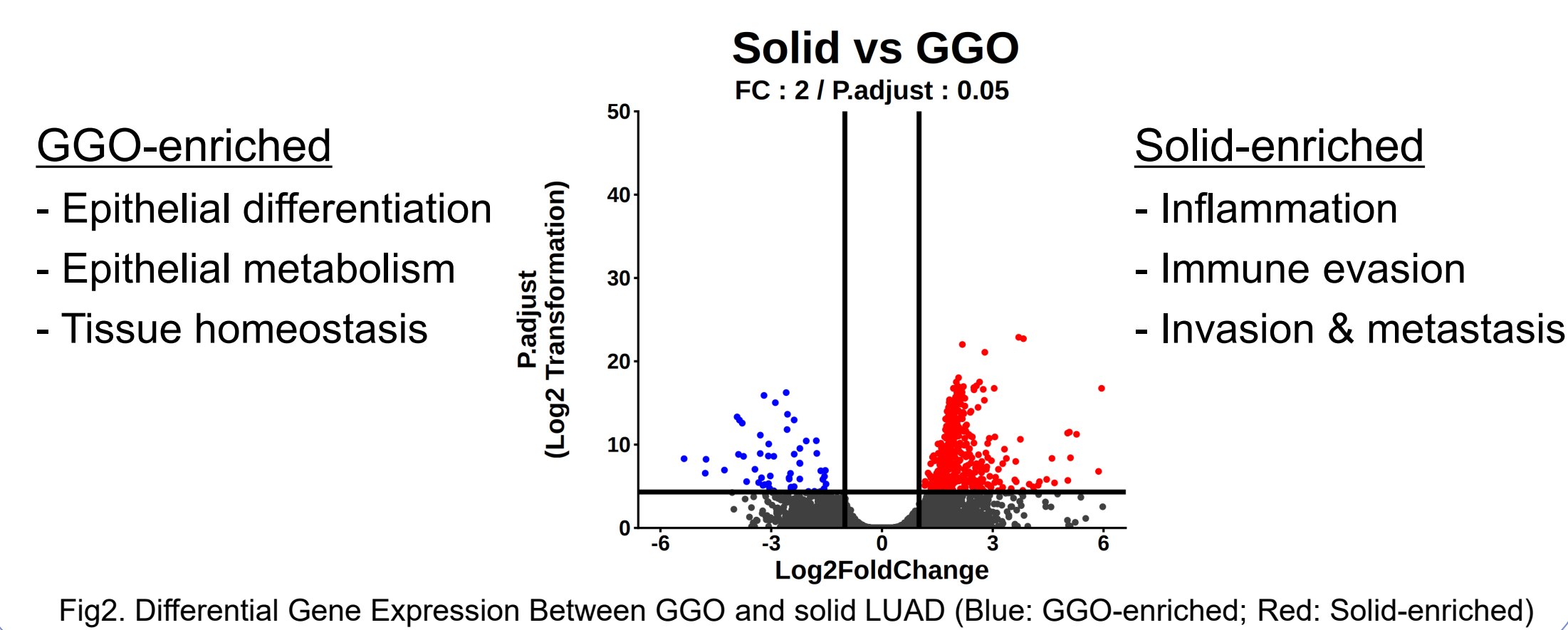
ChatGPT (OpenAI) was used only for assisting with language refinement, grammar, syntax, and organizational clarity. All scientific content, data, and analyses were developed and verified by the authors.

RESULTS

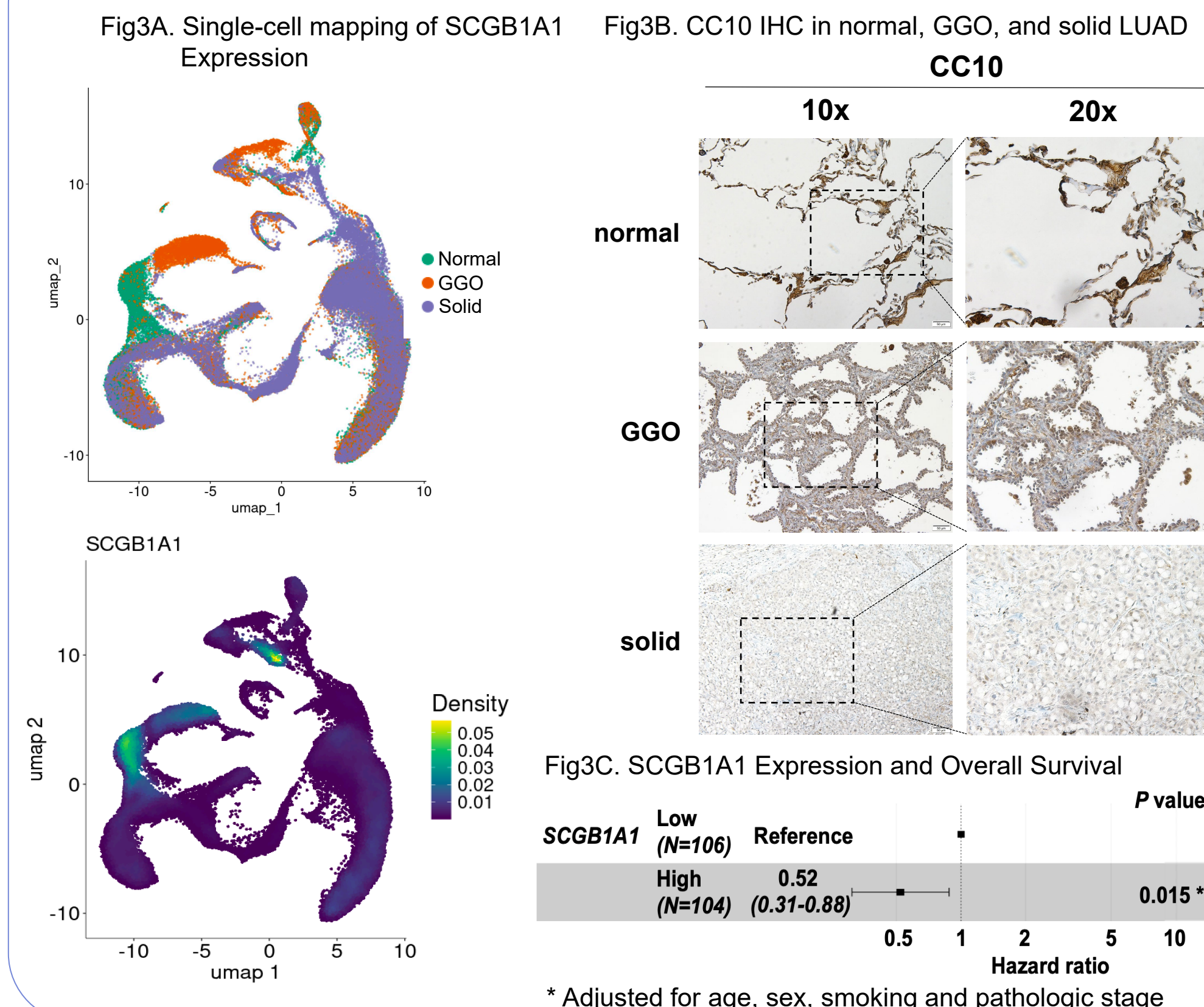
1. GGO and solid LUAD are clinically different



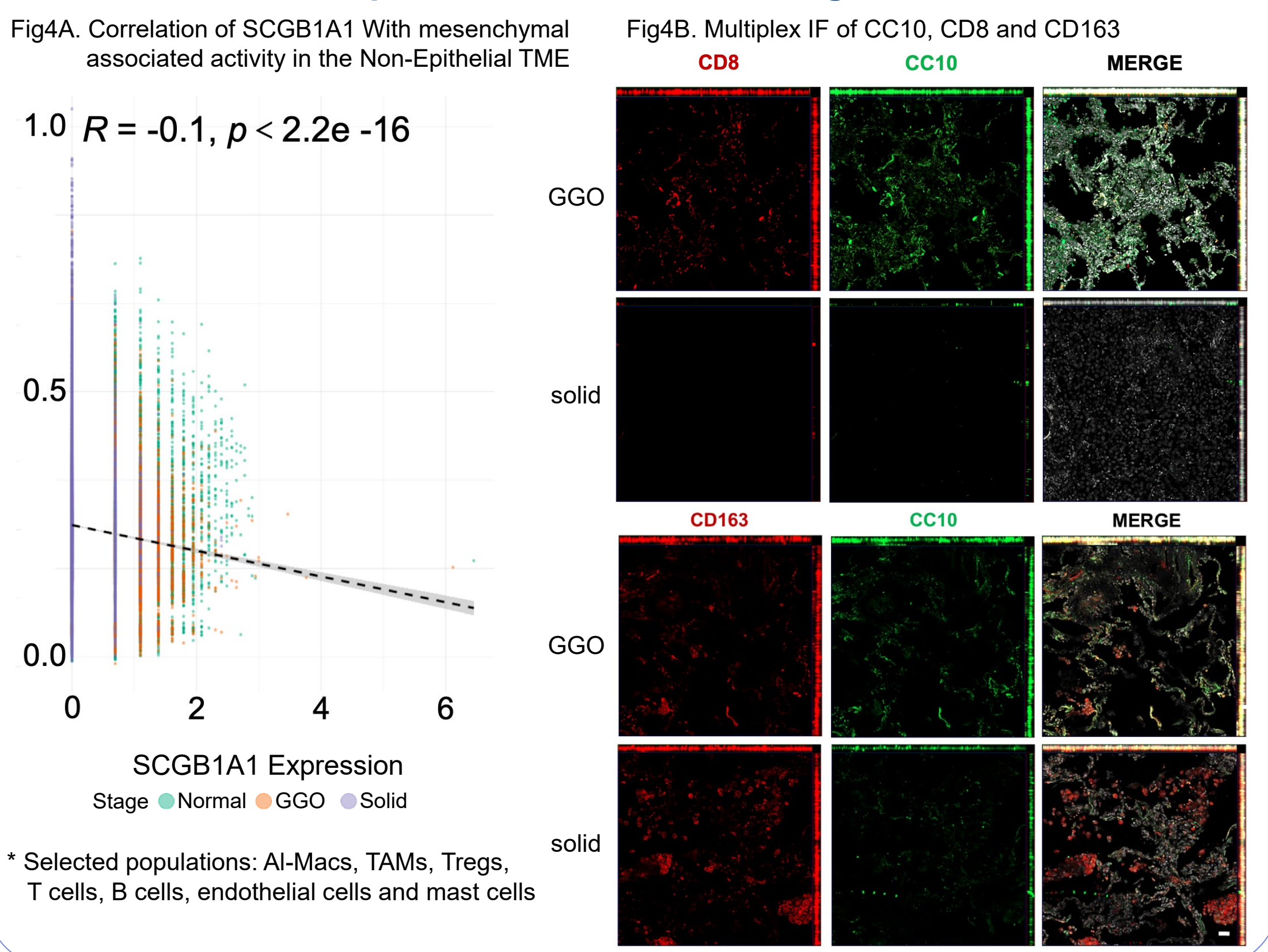
2. Distinct Molecular Programs characterize GGO and solid LUAD



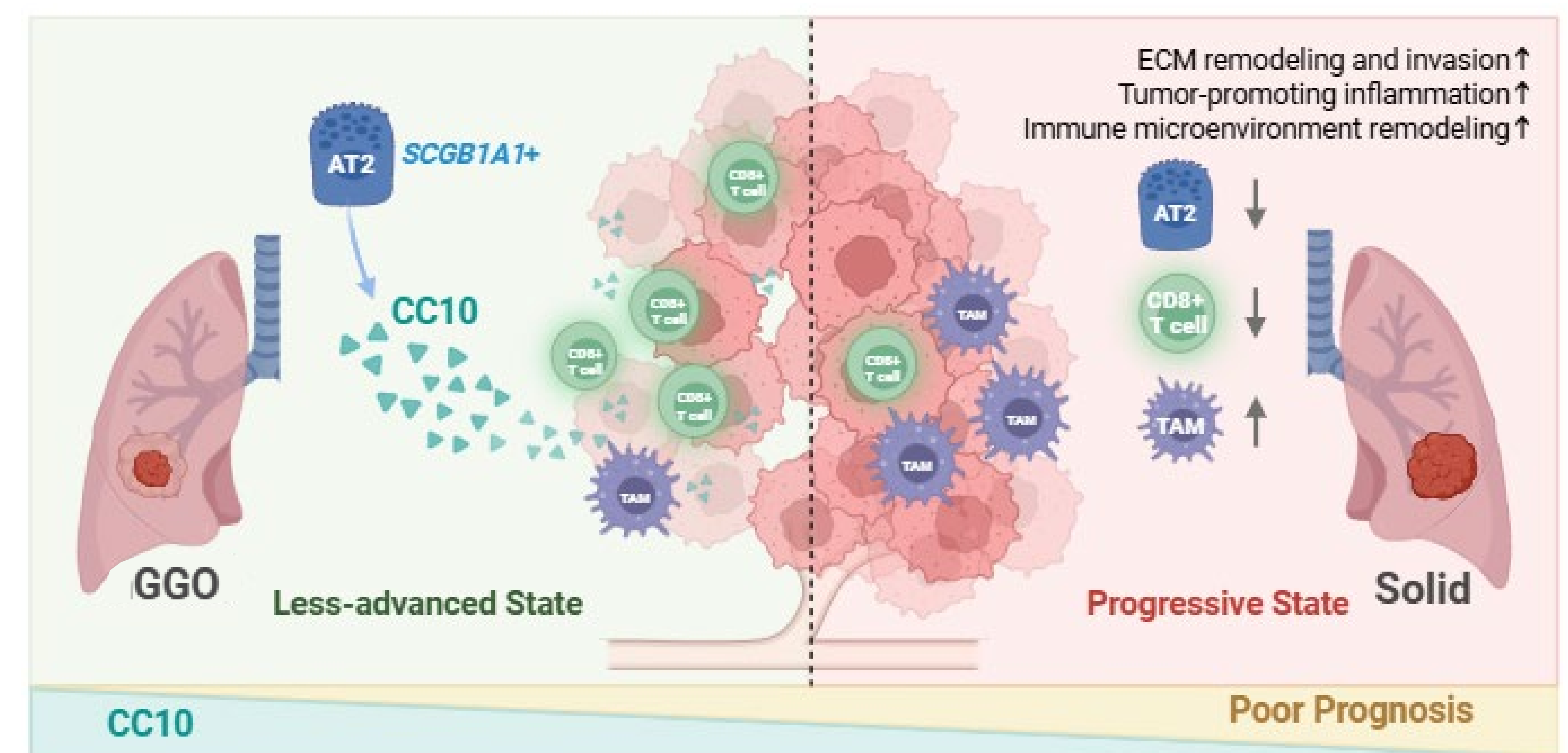
3. SCGB1A1/CC10 marks GGO-to-solid transition



4. CC10 loss accompanies immune remodeling



DISCUSSION AND CONCLUSION



Future Direction for Research

- Prospective longitudinal validation with CT-pathology-molecular co-registration.
- Functional studies to determine whether CC10 loss is causal or a state marker.

Actionable Take Away Message

SCGB1A1/CC10 is a candidate marker linking radiologic solidification with epithelial-state loss and immune remodeling in early LUAD.