PERSIST Analysis Report

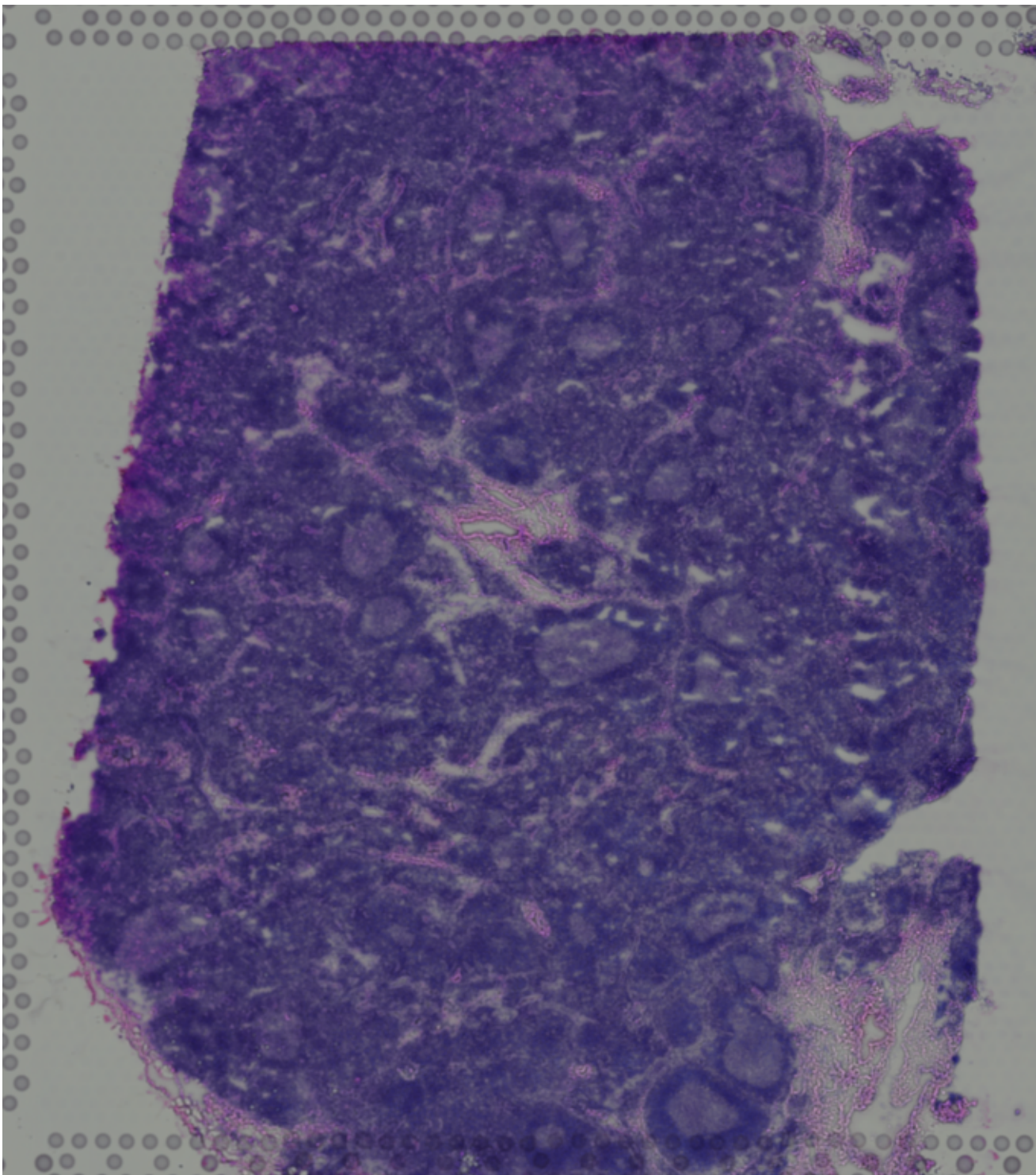Tissue Type: breast_cancer
Run Date: 2026-01-22 22:12

Metrics Summary:

- Scale Local Coherence (SLC): 0.9975 (>0.9 = Robust)
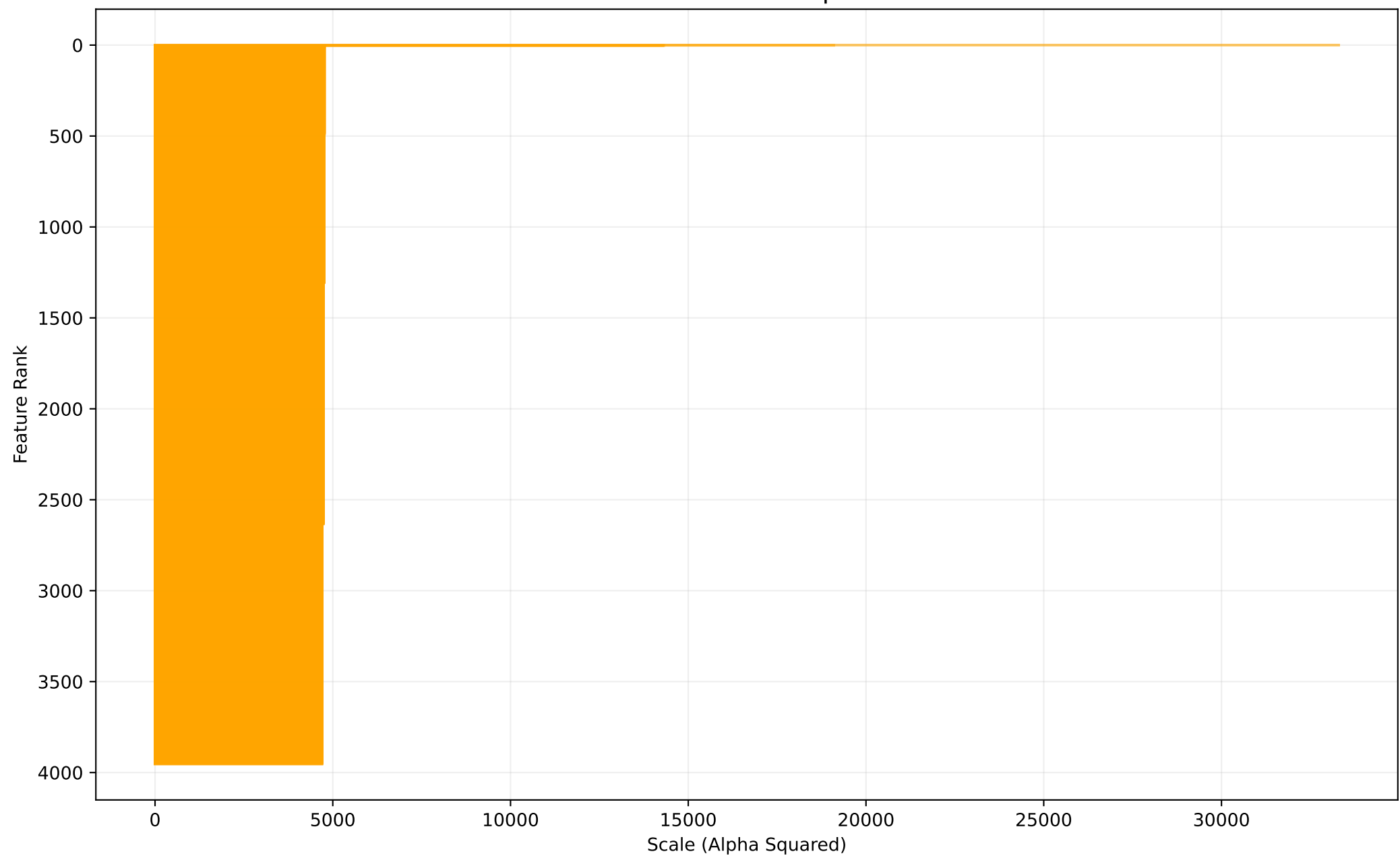- Orthogonality (TOI): 0.8508
- Baseline ARI: 0.3251

Topology Statistics:

- H1 Features (Loops): 7572
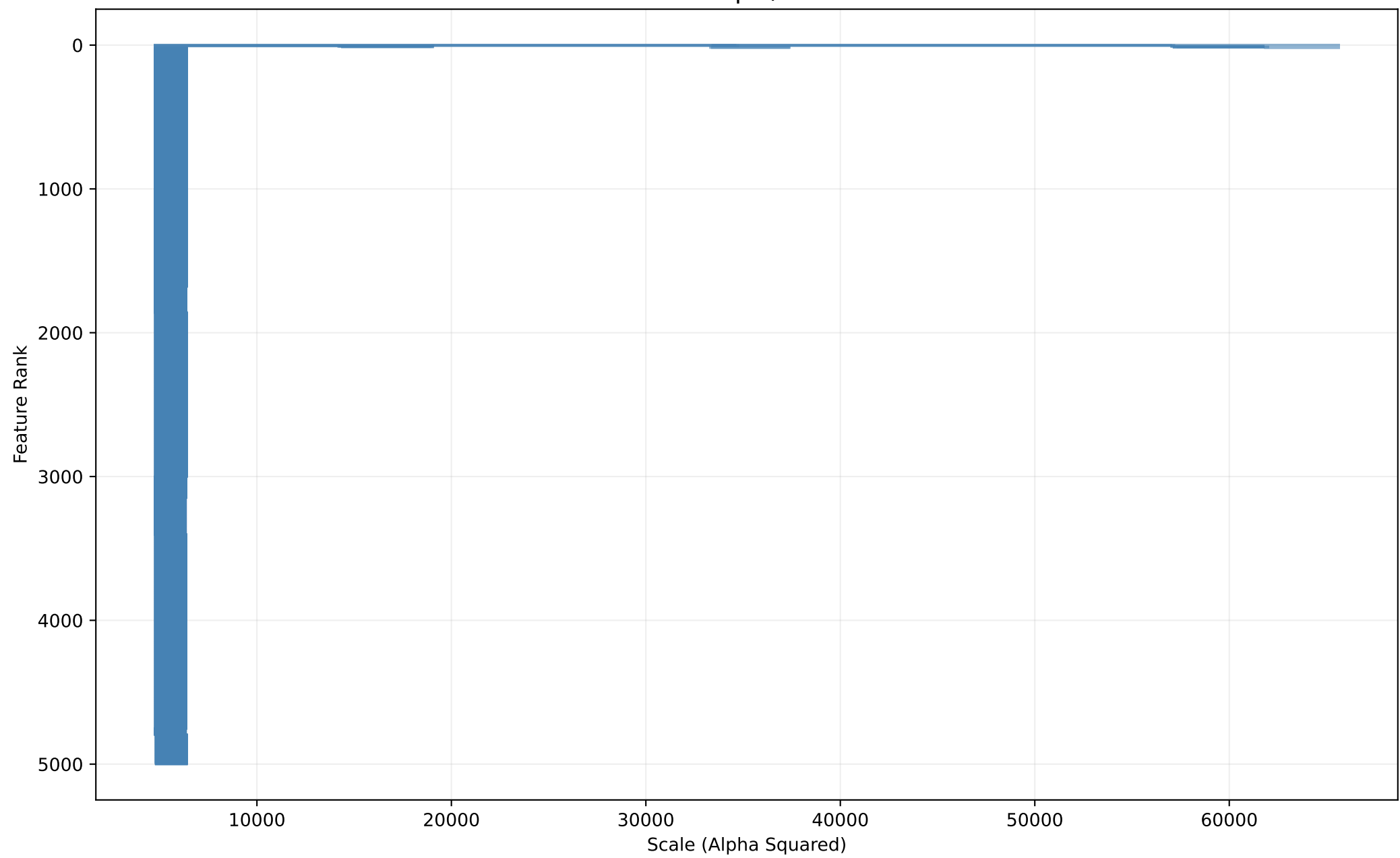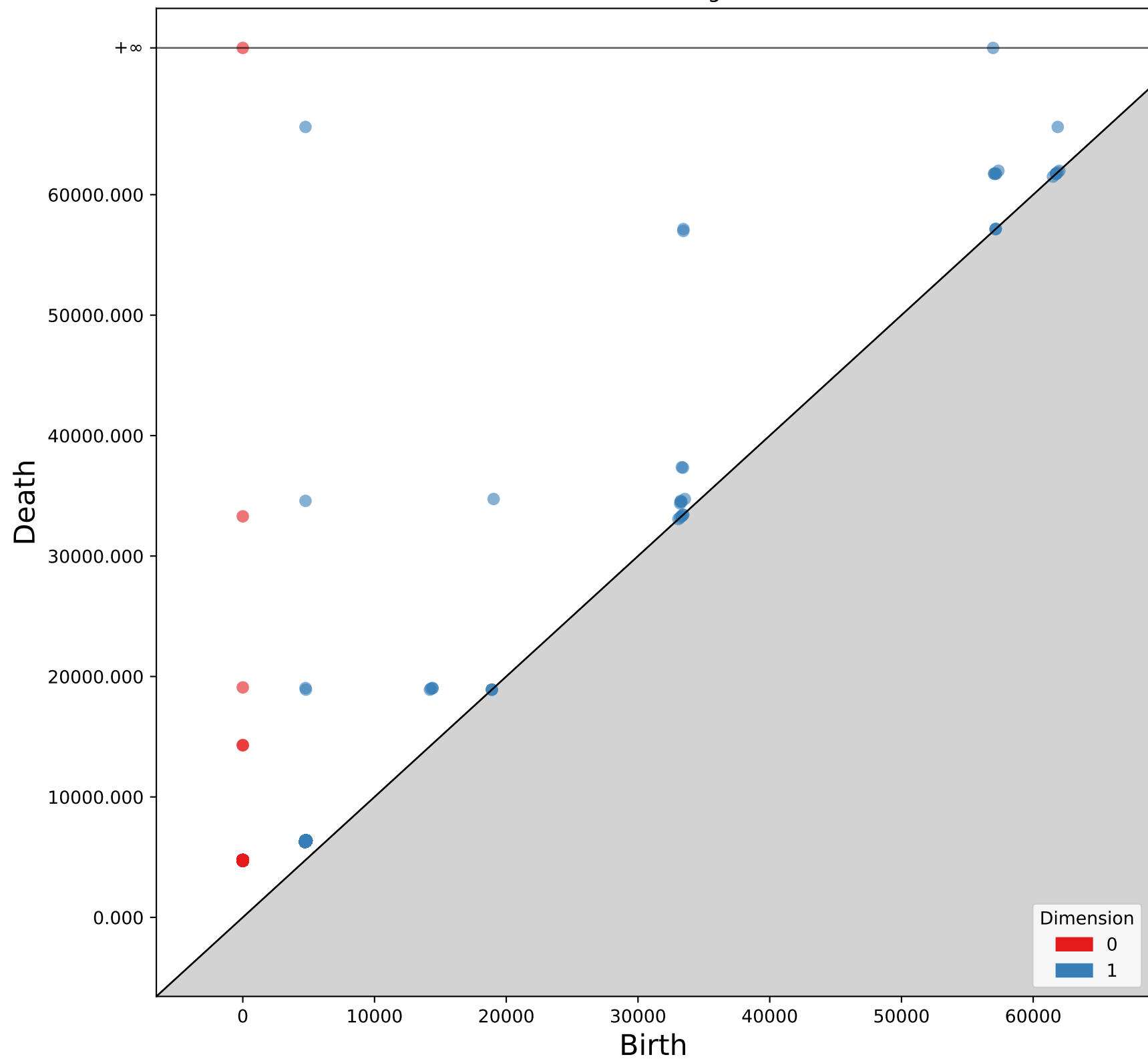- Significant Cores: 1373
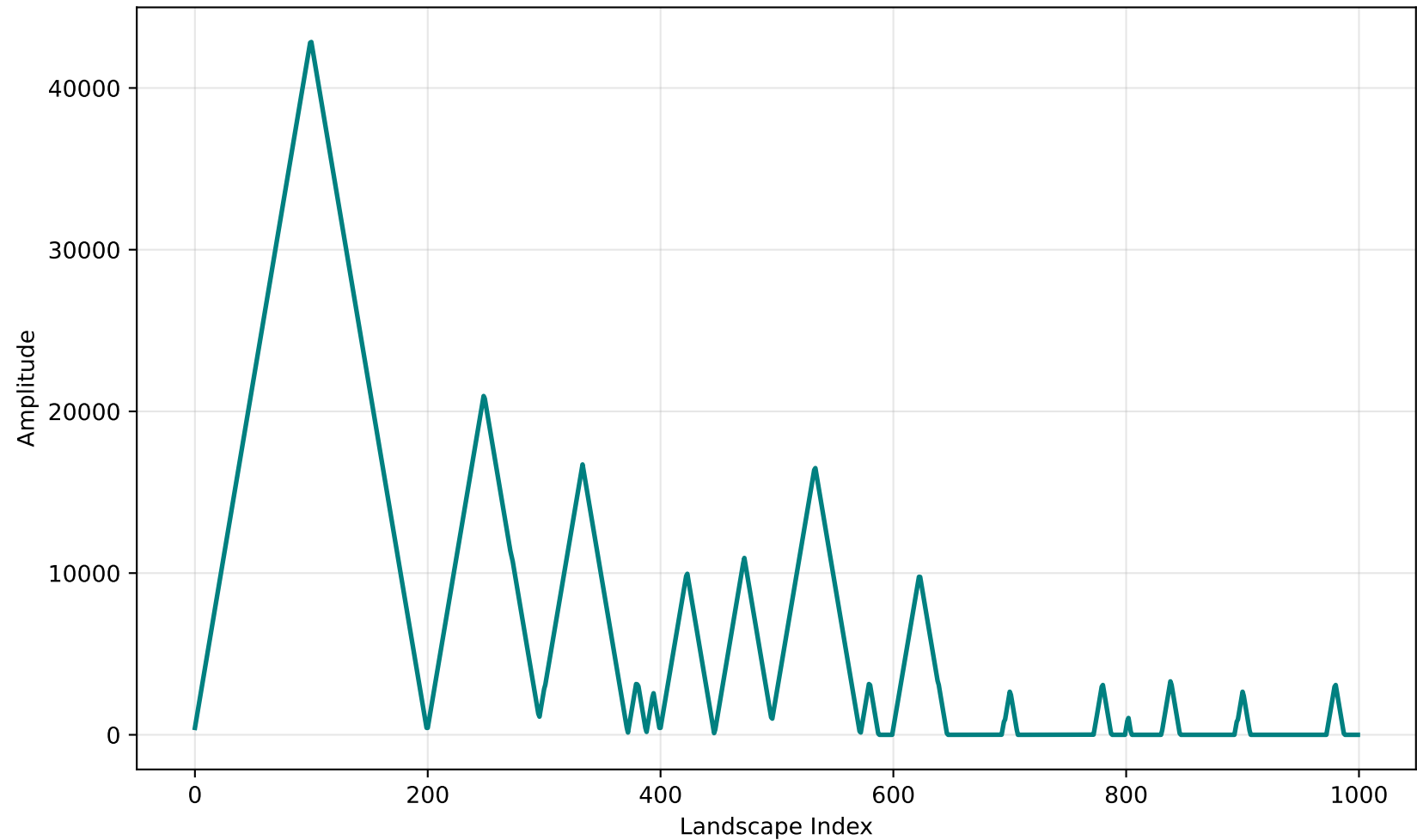- Mean Stability: 0.641

H&E Histology

H0: Connected Components

Feature Rank vs Scale (Alpha Squared)

H1: Loops / Voids
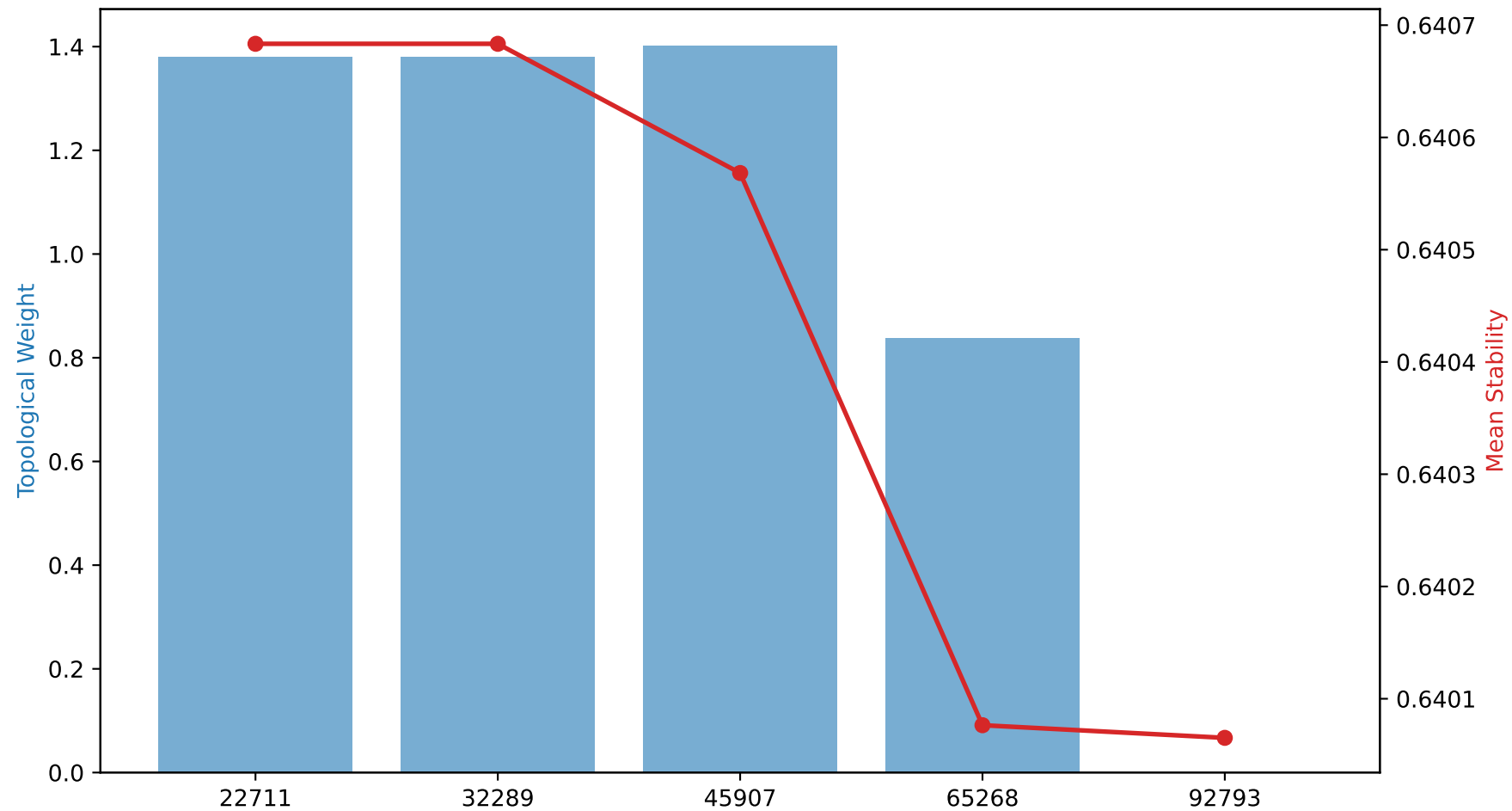
Feature Rank vs Scale (Alpha Squared)
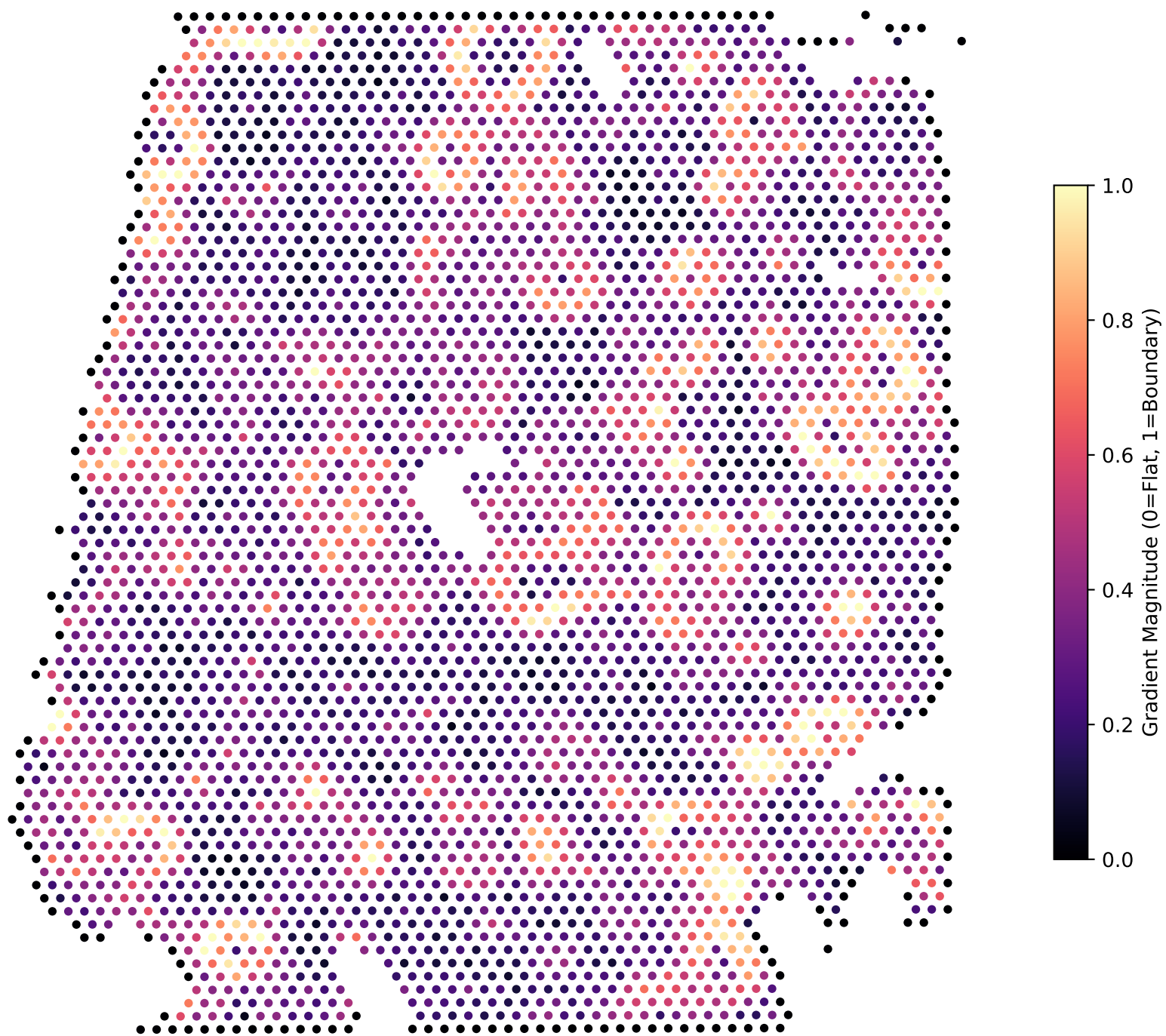
Persistence Diagram

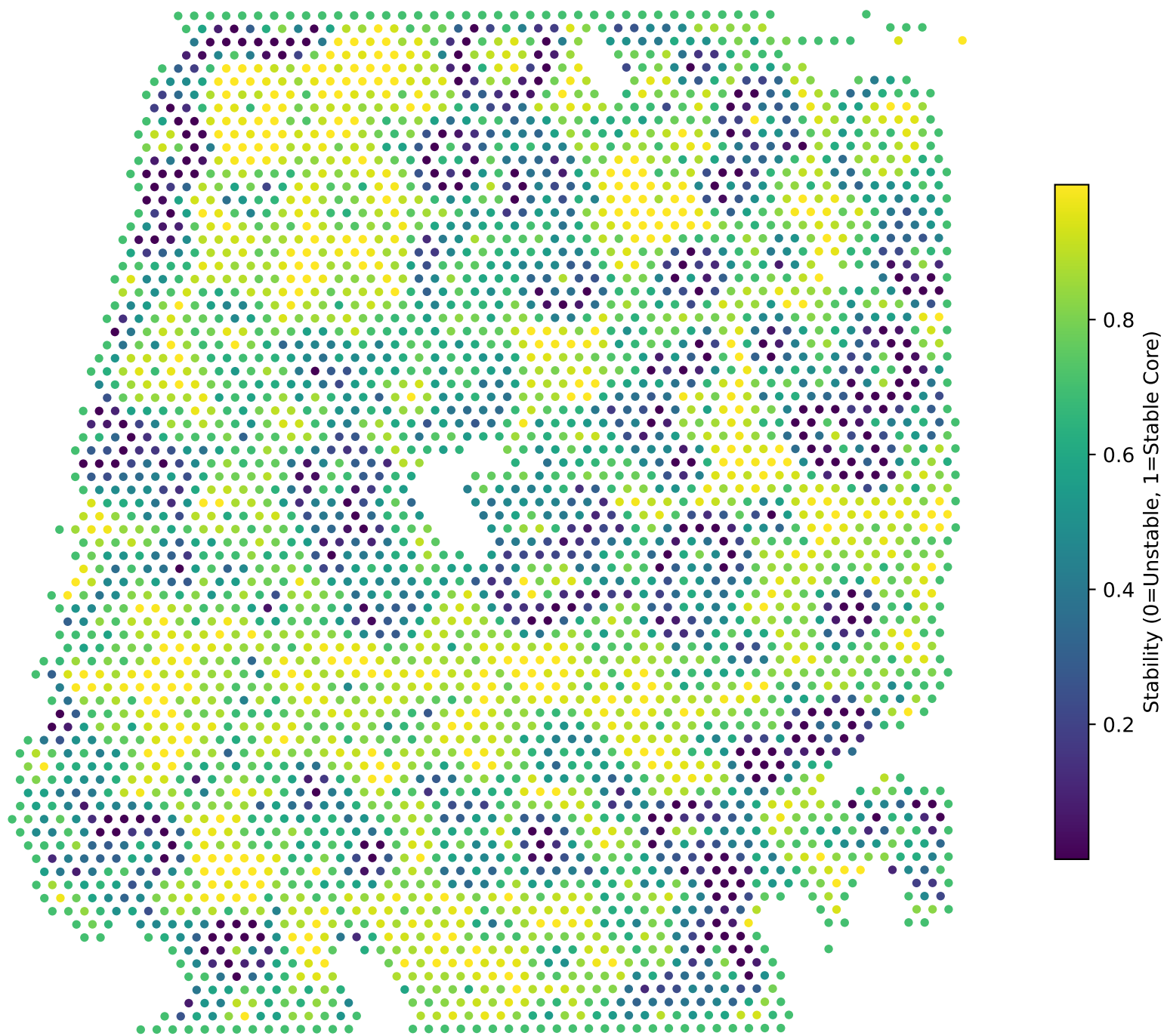Topological Landscape Signature

Scale Selection Rationale

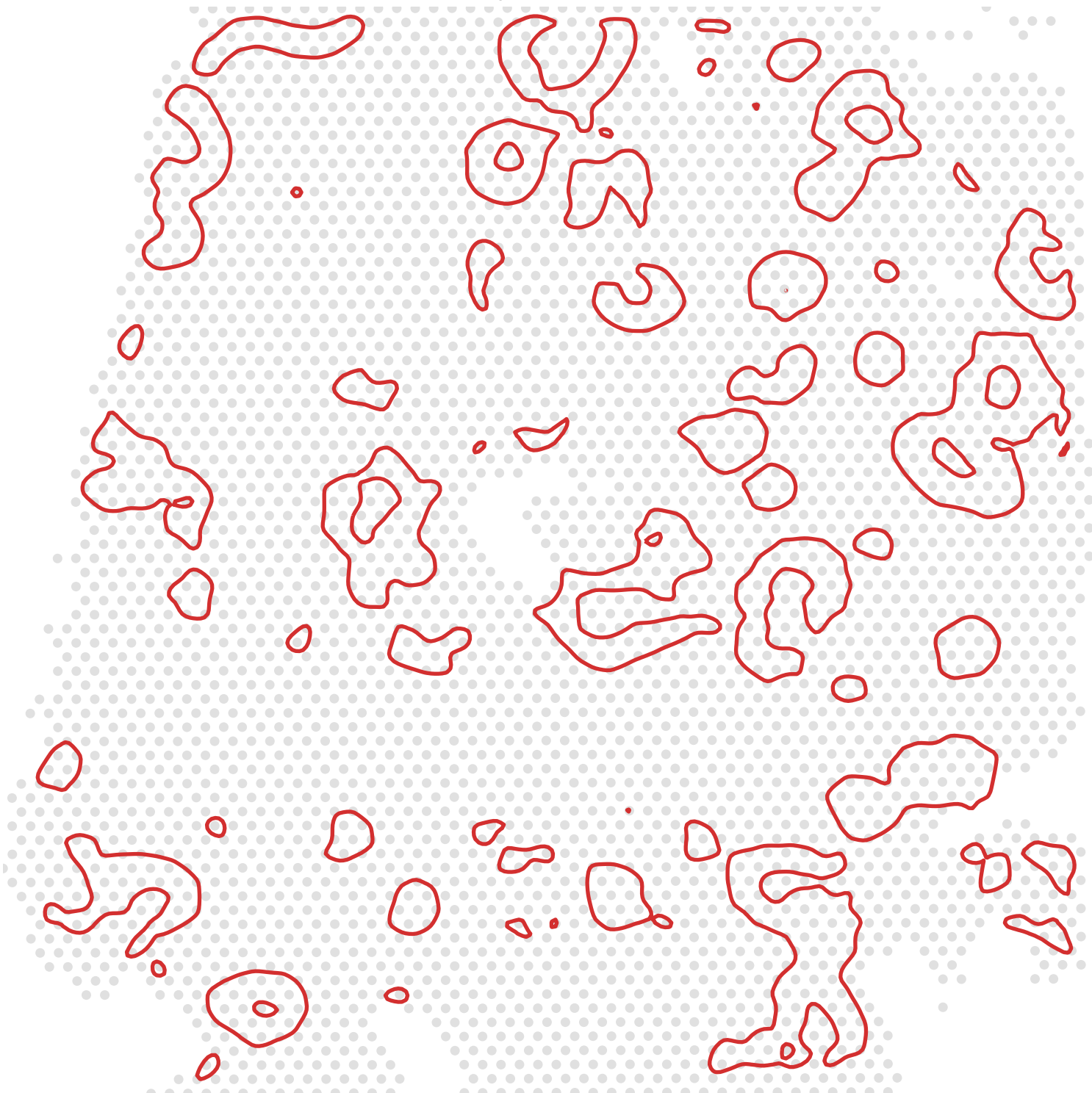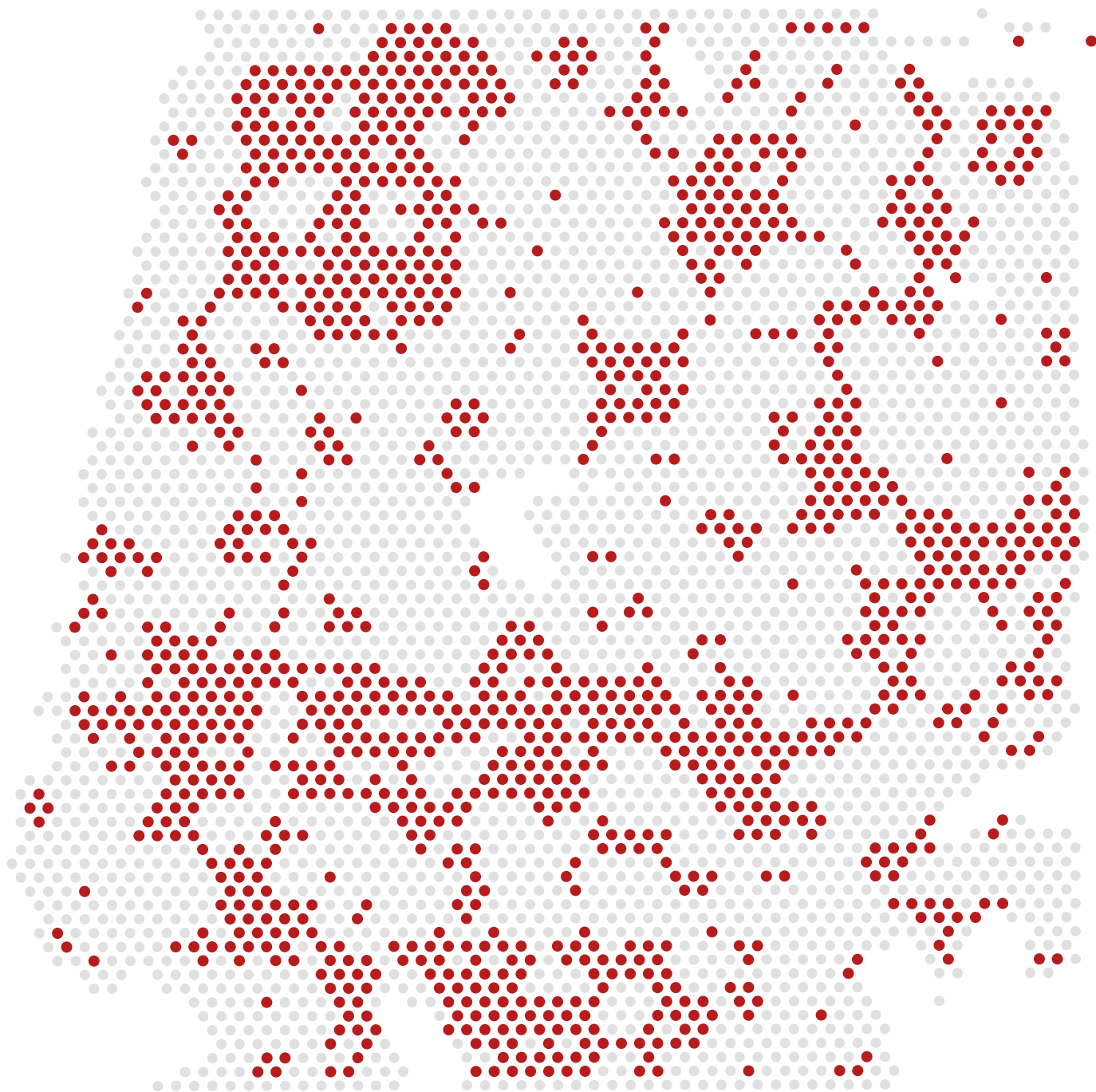Topological Walls (Frontiers)
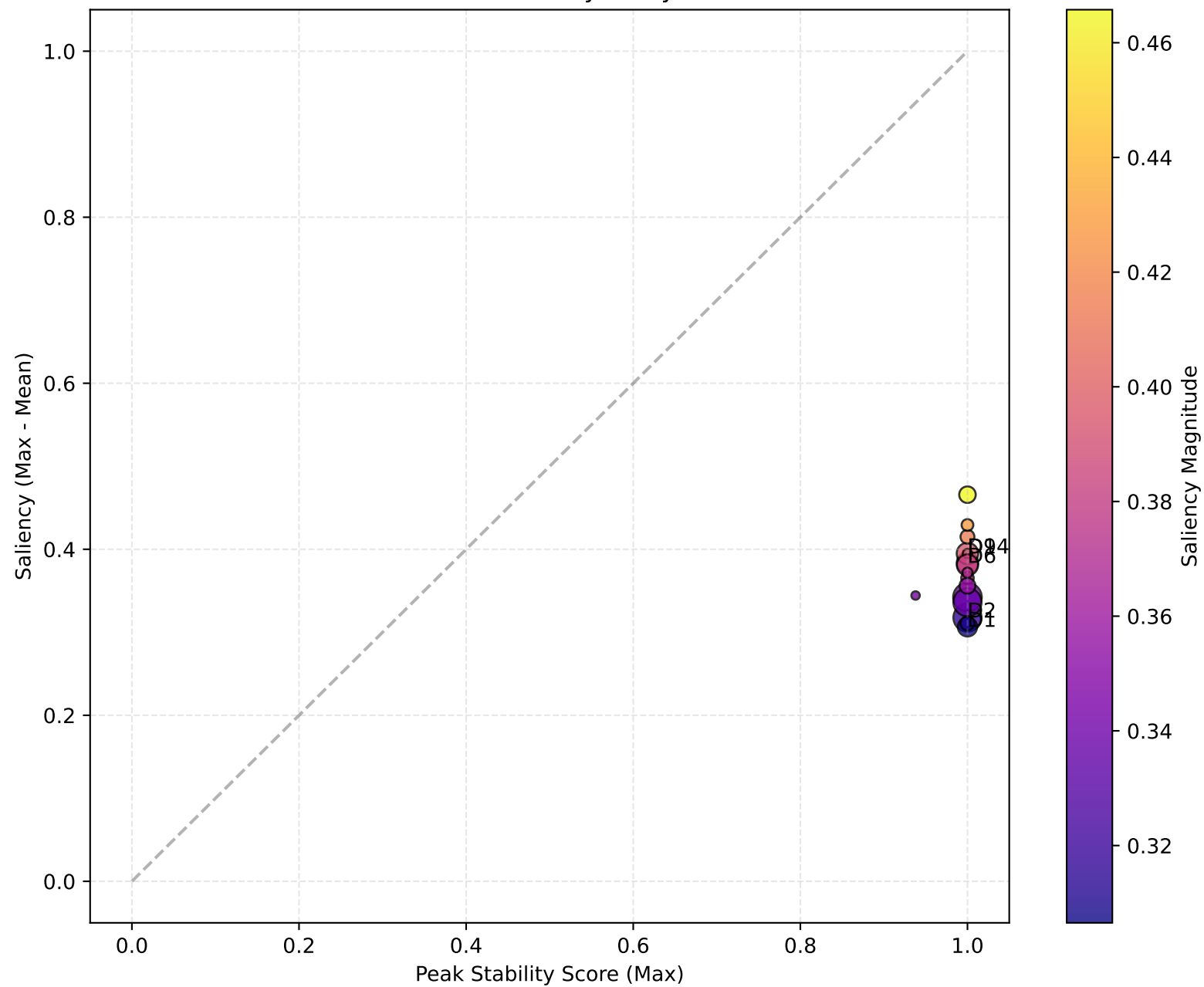
Stability Landscape (Energy)

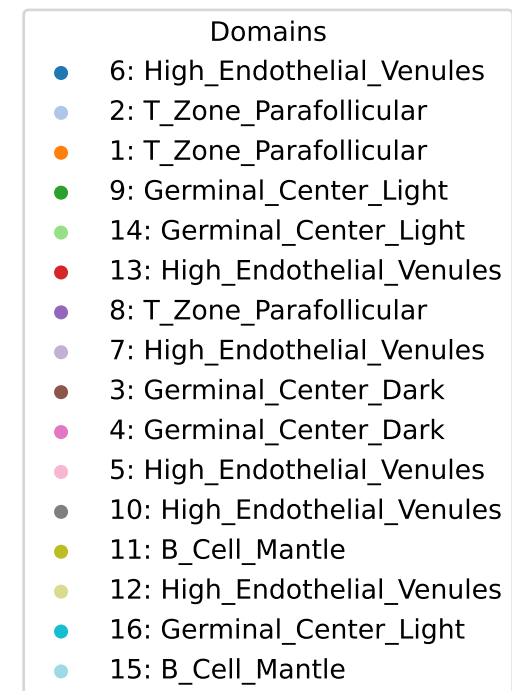Basin Decomposition (Red = Walls)

Robust Stability Cores (1373 spots)

Domain Saliency Analysis

Final Topological Domains (Solid Map)

Domains
- 6: High_Endothelial_Venules
- 2: T_Zone_Parafollicular
- 1: T_Zone_Parafollicular
- 9: Germinal_Center_Light
- 14: Germinal_Center_Light
- 13: High_Endothelial_Venules
- 8: T_Zone_Parafollicular
- 7: High_Endothelial_Venules
- 3: Germinal_Center_Dark
- 4: Germinal_Center_Dark
- 5: High_Endothelial_Venules
- 10: High_Endothelial_Venules
- 11: B_Cell_Mantle
- 12: High_Endothelial_Venules
- 16: Germinal_Center_Light
- 15: B_Cell_Mantle

Domain Overlay on Histology

- 1: T_Zone_Parafollicular
- 2: T_Zone_Parafollicular
- 10: High_Endothelial_Venules
- 3: Germinal_Center_Dark
- 11: B_Cell_Mantle
- 4: Germinal_Center_Dark
- 12: High_Endothelial_Venules
- 5: High_Endothelial_Venules
- 13: High_Endothelial_Venules
- 6: High_Endothelial_Venules
- 14: Germinal_Center_Light
- 7: High_Endothelial_Venules
- 15: B_Cell_Mantle
- 8: T_Zone_Parafollicular
- 16: Germinal_Center_Light
- 9: Germinal_Center_Light

Biological Validation

Stability Gradient Flow