

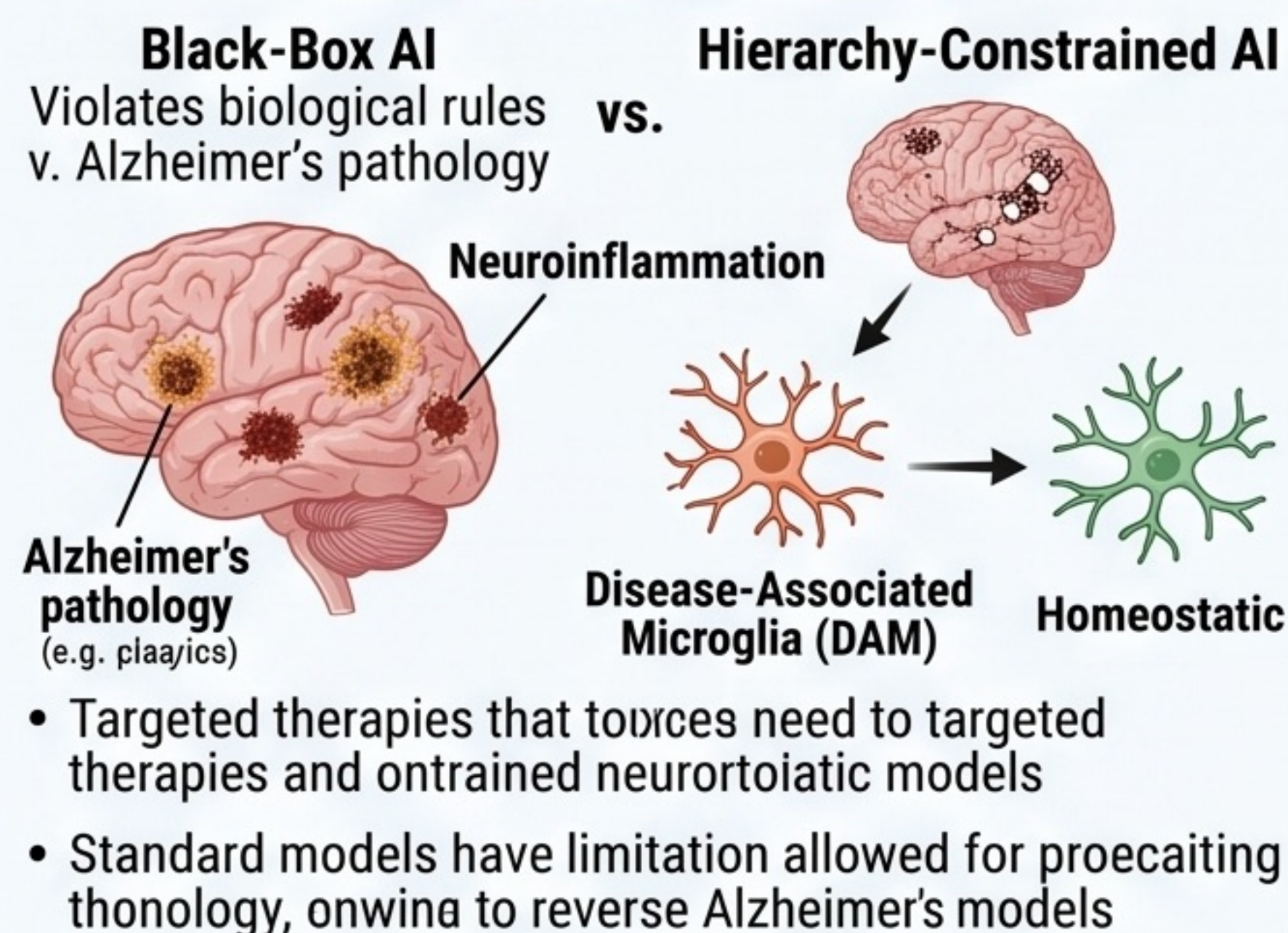
Hierarchical Disease-State Generators for Neurodegenerative Genomics: Simulating Multi-Omic Interventions

David Scott Lewis, Enrique Zueco, Haley Yi
AIXC Bio, Zaragoza, Spain
email: reports@aixcbio.com

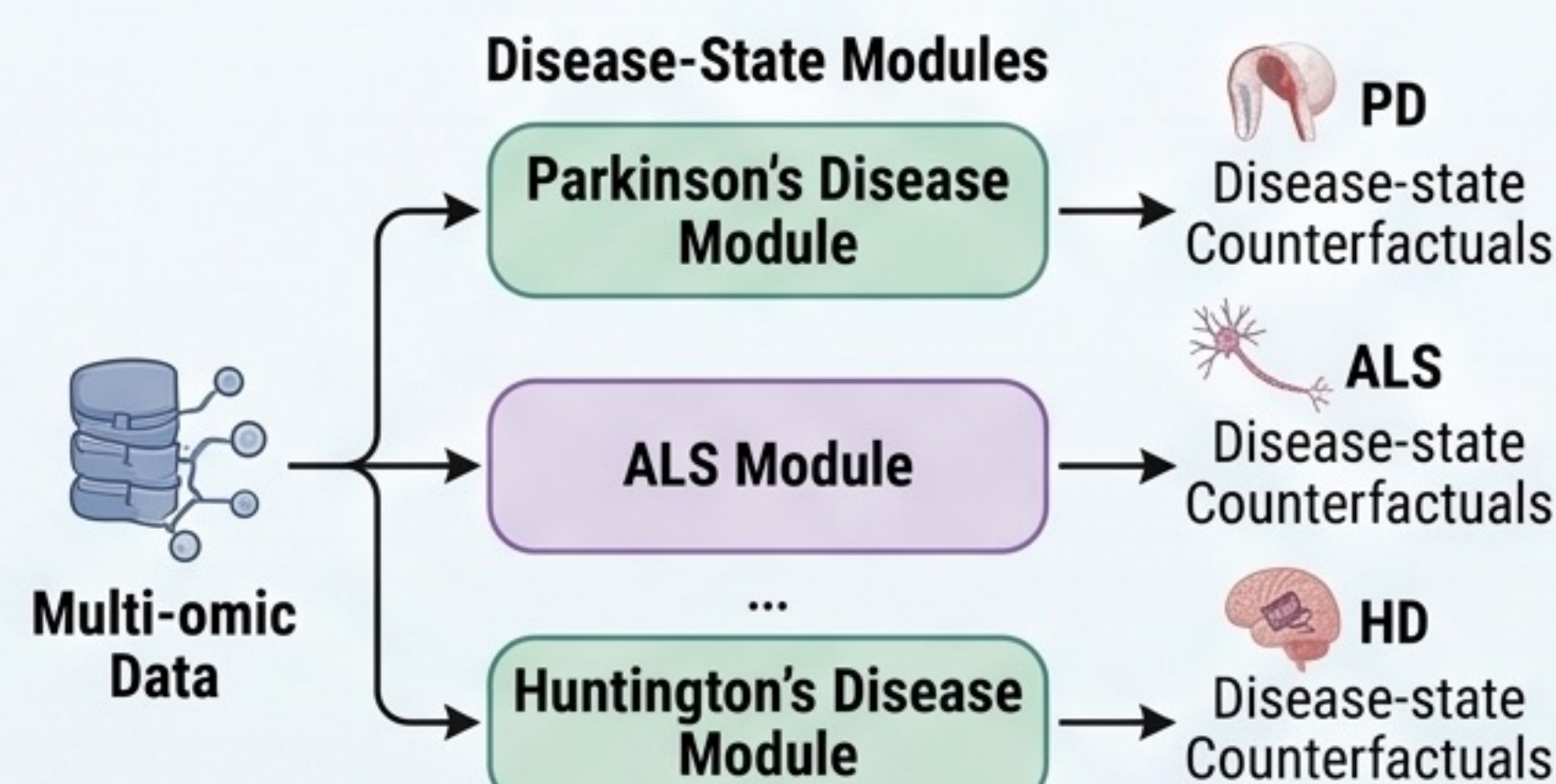
ALZHEIMER'S ASSOCIATION
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KEY TAKEAWAY: Hierarchical AI constrains generative diffusion models to obey known biology, enabling realistic, high-throughput *in silico* screen for single and combination therapies to reverse Alzheimer's disease states.

INTRODUCTION



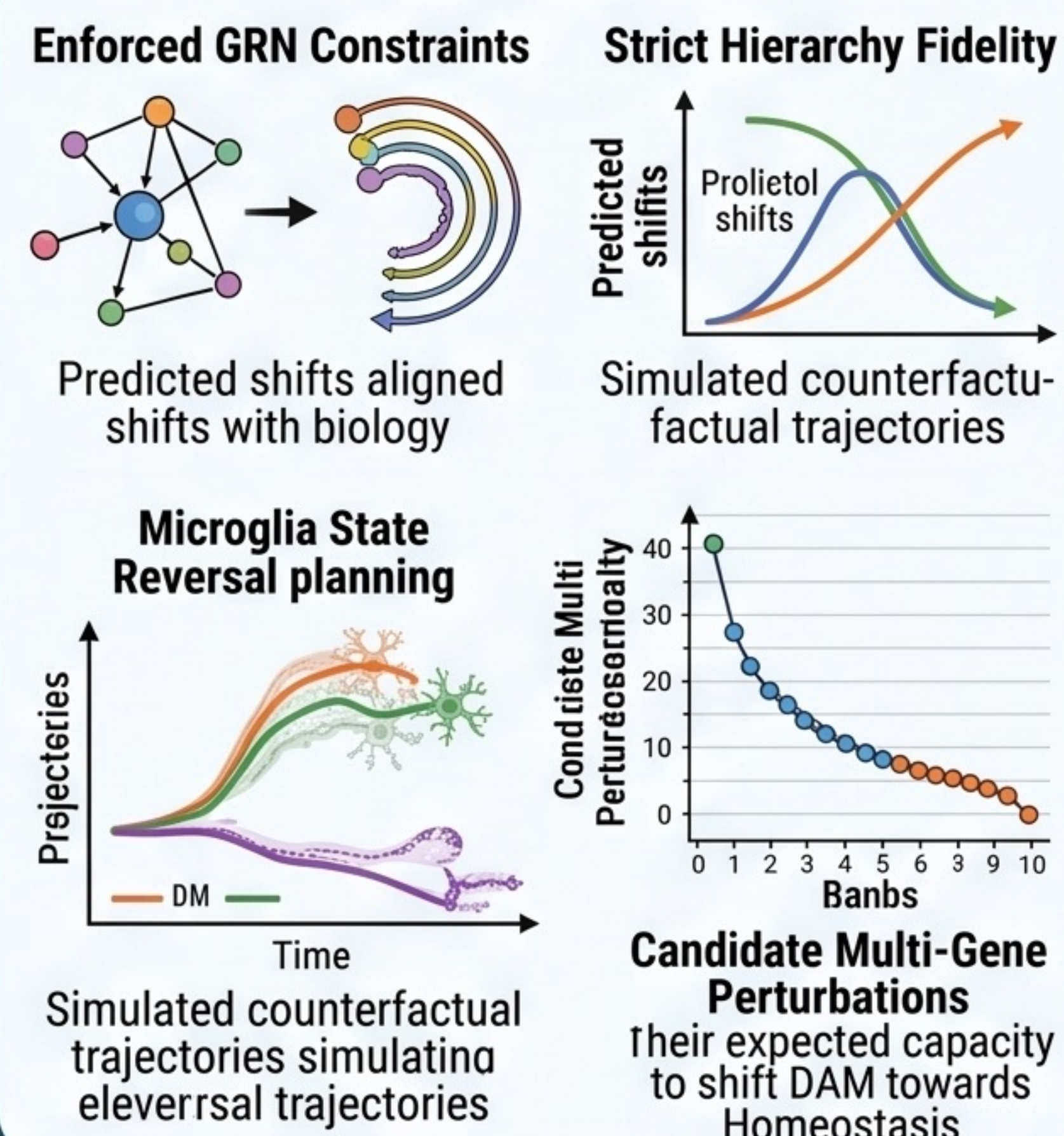
GENERALIZATION ACROSS MULTIPLE NEURODEGENERATIVE CONDITIONS



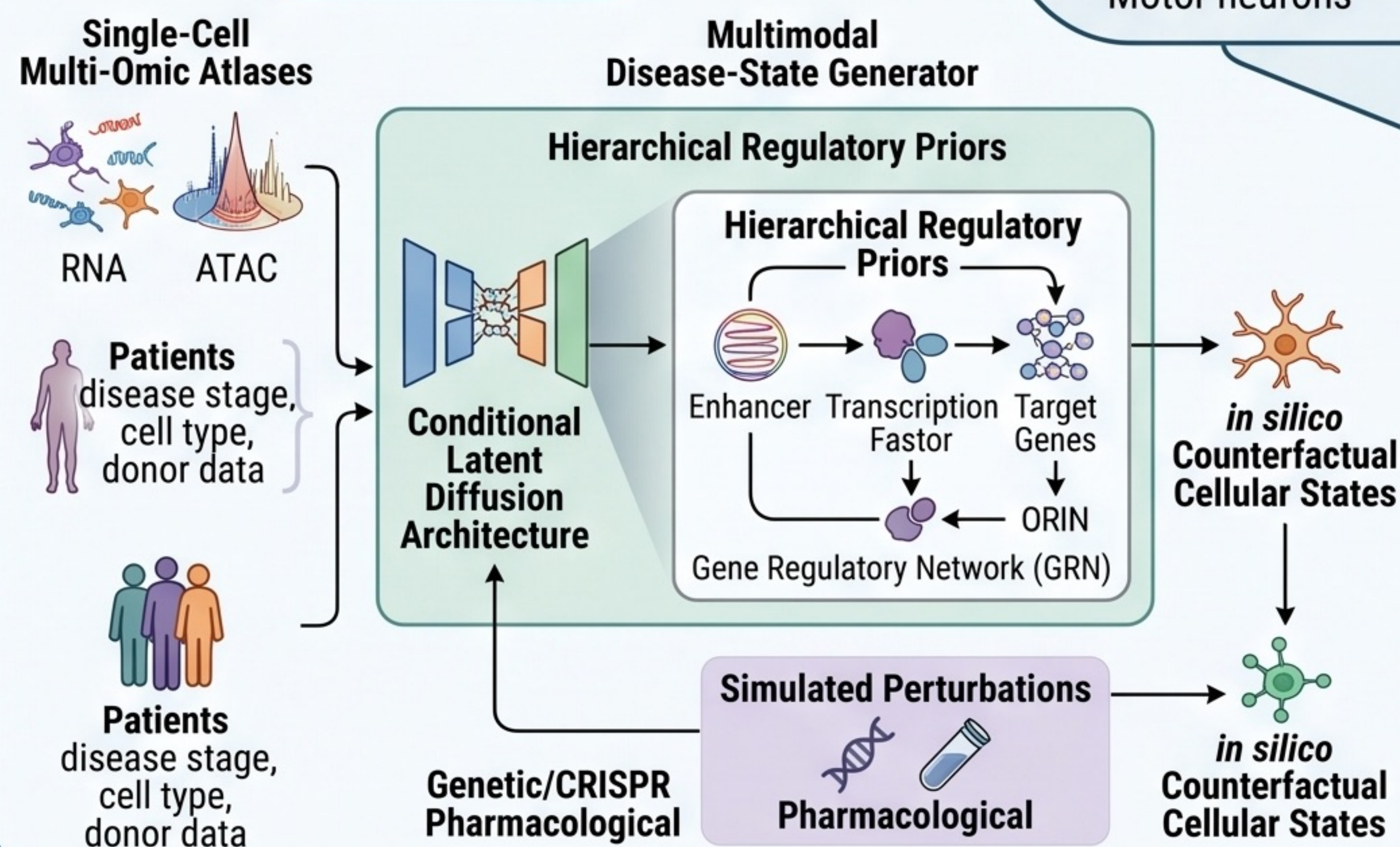
ADAPTIVE FRAMEWORK

- Same hierarchical constraints retrained with disease-specific GRNs
- Simulate counterfactuals in Dopaminergic, Motor neurons

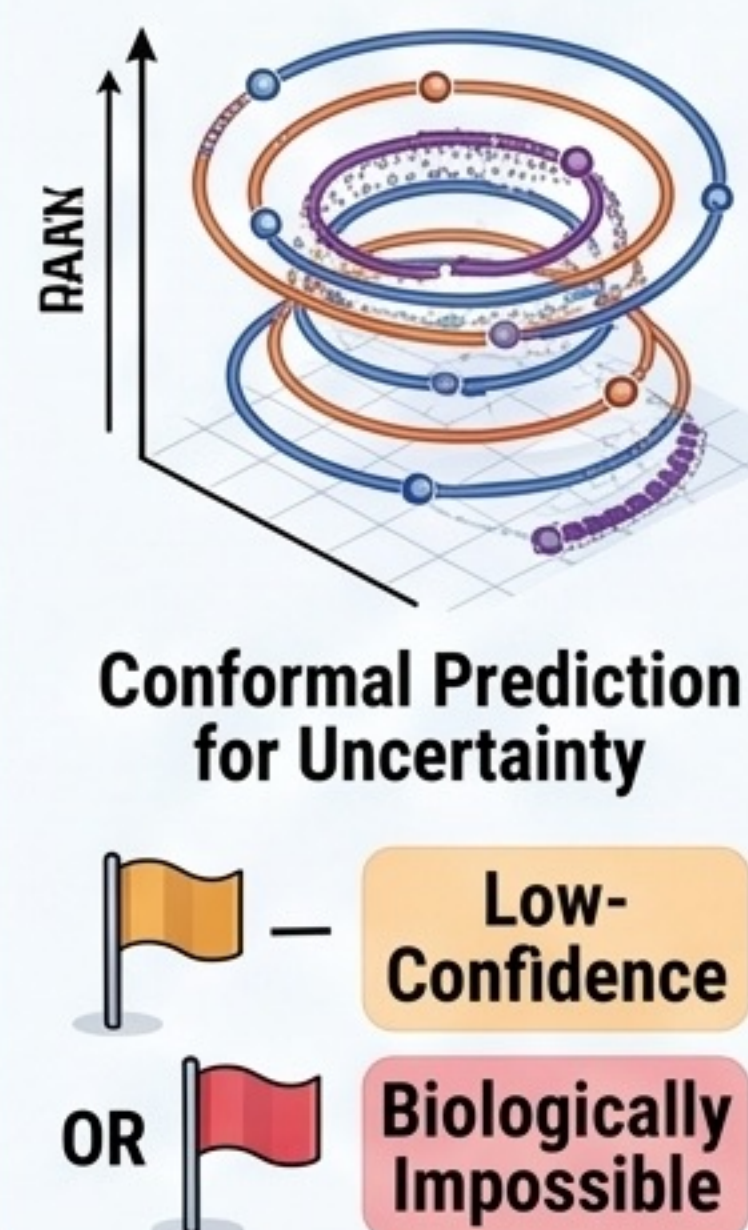
RESULTS



METHODS



Candidate Multi-Gene Perturbations



CONCLUSIONS

