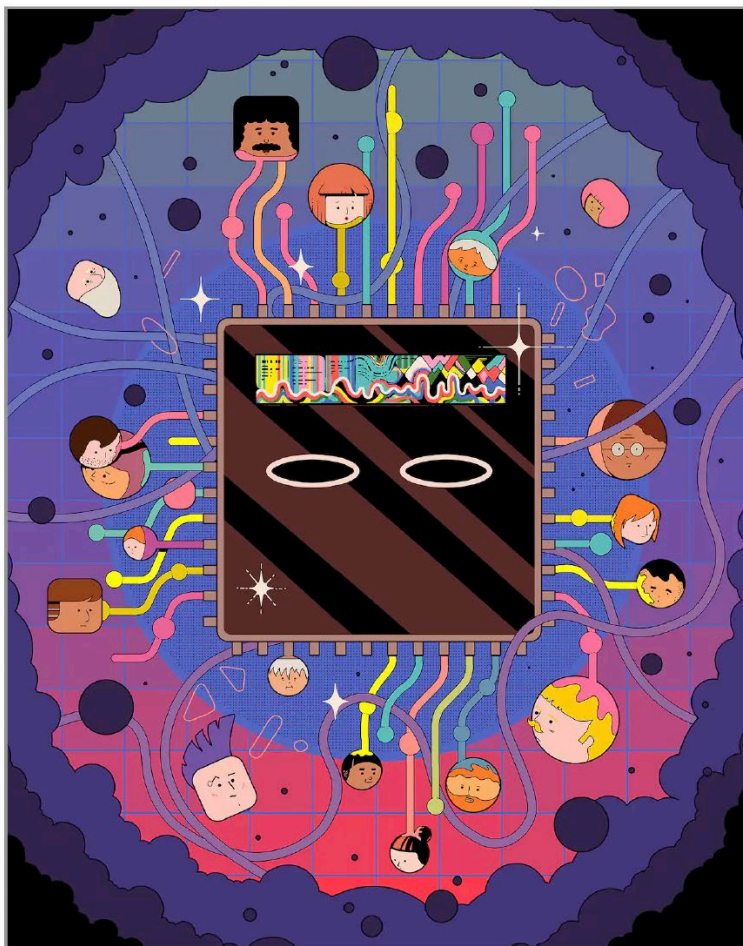


Teaching Machines to Doubt: Building Humble and Curious AI for Healthcare

Leo Anthony Celi (we/us)

MIT Critical Data





Opinion

AI isn't smart enough to destroy us

The real threats AI poses will come from the humans who wield it.

Today at 6:30 a.m. EDT



[nature](#) > [nature methods](#) > [articles](#) > article

Article | Published: 26 February 2024

scGPT: toward building a foundation model for single-cell multi-omics using generative AI

[Haotian Cui](#), [Chloe Wang](#), [Hassaan Maan](#), [Kuan Pang](#), [Fengning Luo](#), [Nan Duan](#) & [Bo Wang](#) 

[Nature Methods](#) **21**, 1470–1480 (2024) | [Cite this article](#)



New Results

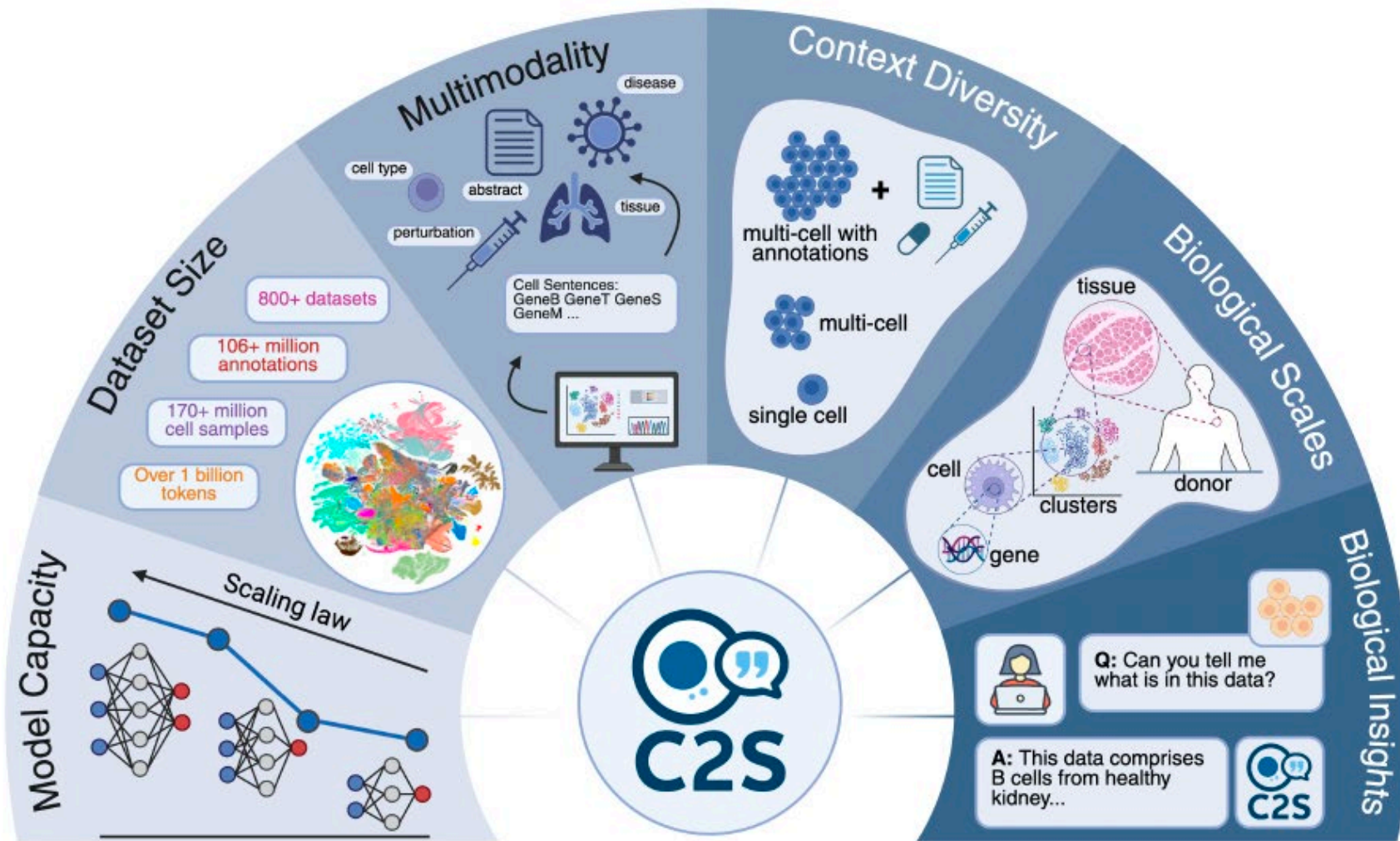
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Scaling Large Language Models for Next-Generation Single-Cell Analysis

 Syed Asad Rizvi, Daniel Levine, Aakash Patel, Shiyang Zhang, Eric Wang, Curtis Jamison Perry, Nicole Mayerli Constante, Sizhuang He, David Zhang, Cerise Tang, Zhuoyang Lyu, Rayyan Darji, Chang Li, Emily Sun, David Jeong, Lawrence Zhao, Jennifer Kwan, David Braun, Brian Hafler,  Hattie Chung, Rahul M. Dhodapkar, Bryan Perozzi, Jeffrey Ishizuka, Shekoofeh Azizi,  David van Dijk

doi: <https://doi.org/10.1101/2025.04.14.648850>







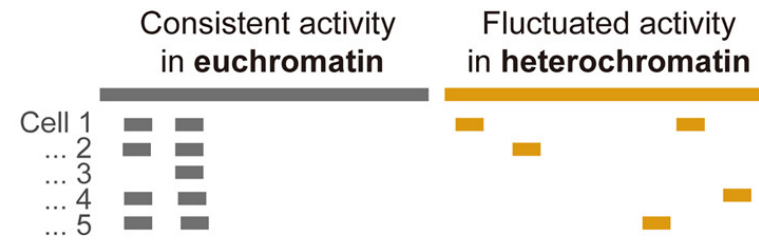
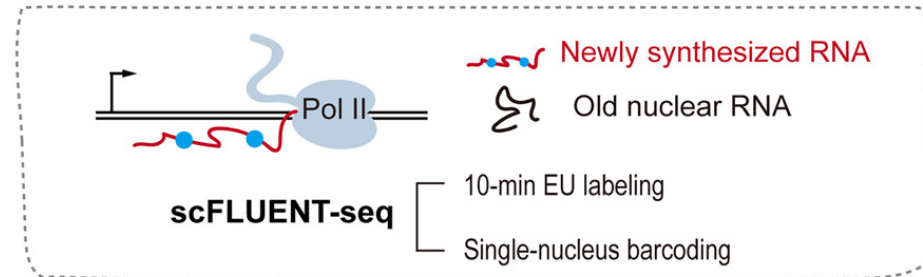
ARTICLE · [Online now](#), September 26, 2025

Single-cell nascent transcription reveals sparse genome usage and plasticity

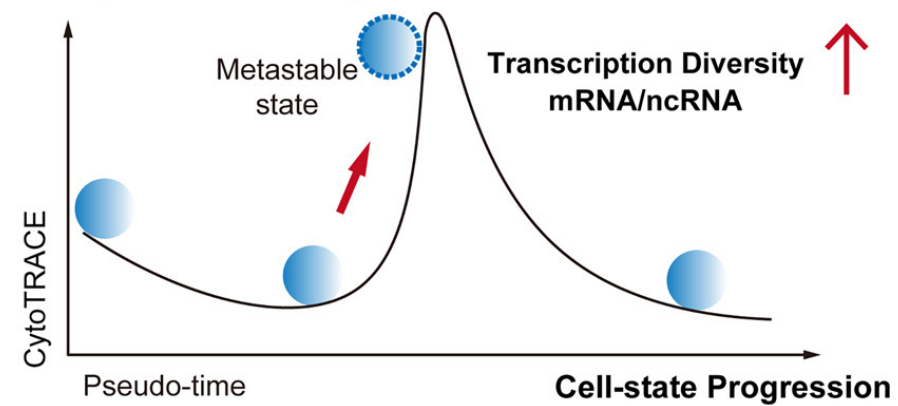
[Shaoqian Ma](#)   · [Yantao Hong](#) · [Junhan Chen](#) · [Jingzhao Xu](#) · [Xiaohua Shen](#) ² 

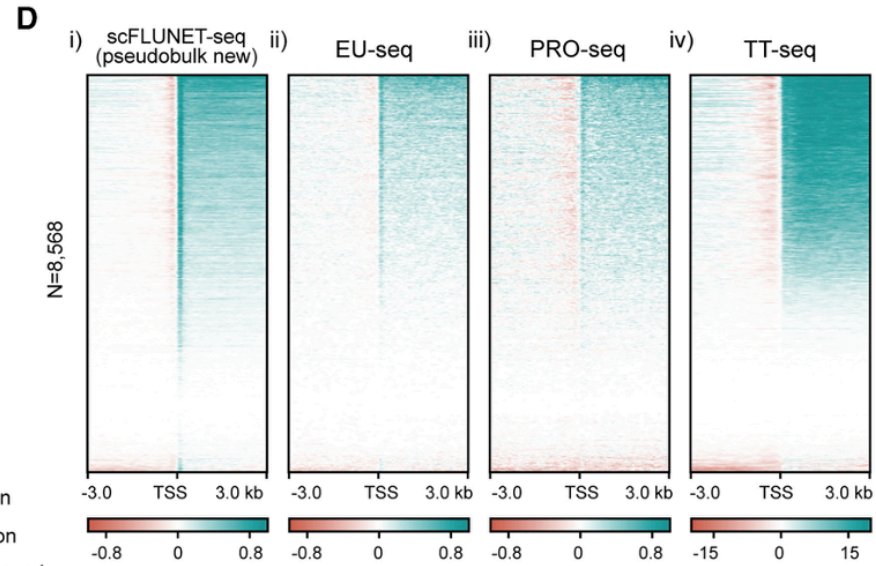
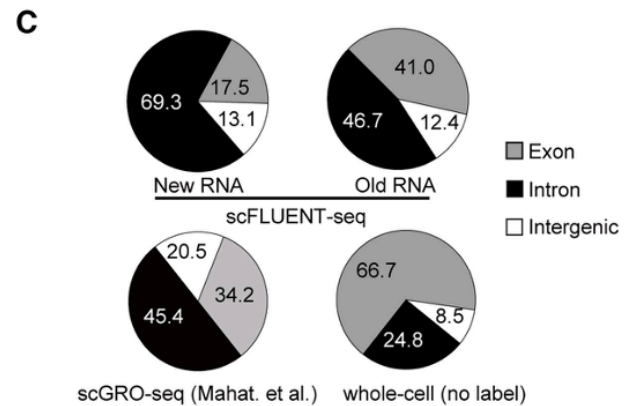
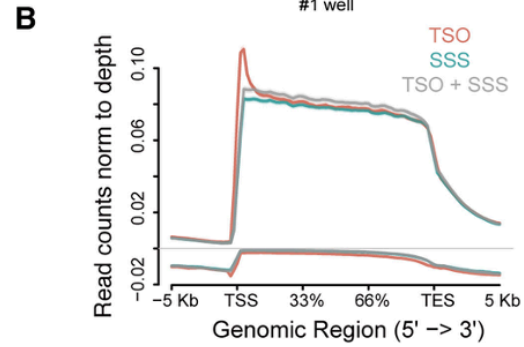
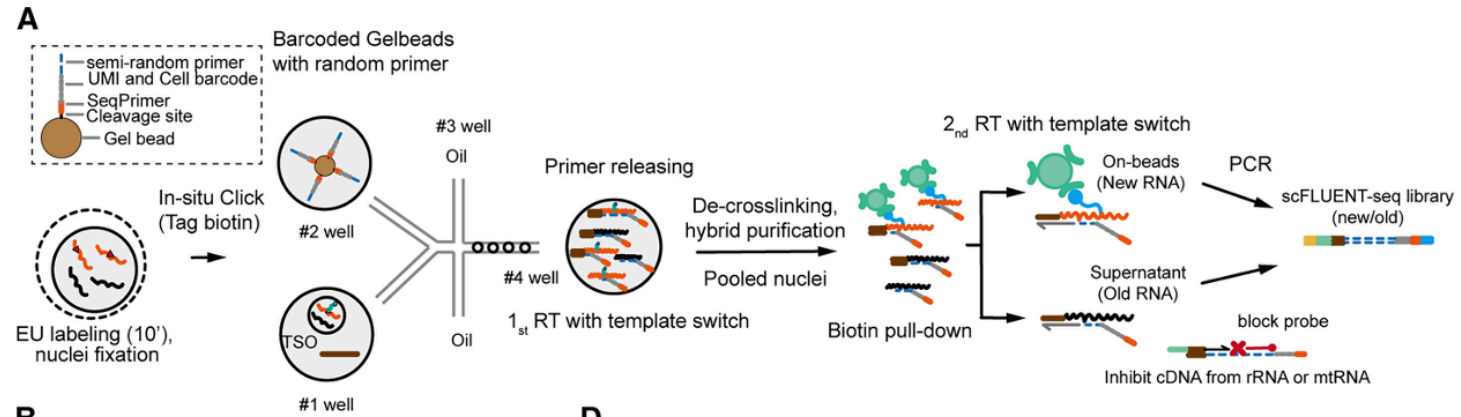


Sparse, Stochastic Single-cell Nascent Transcription

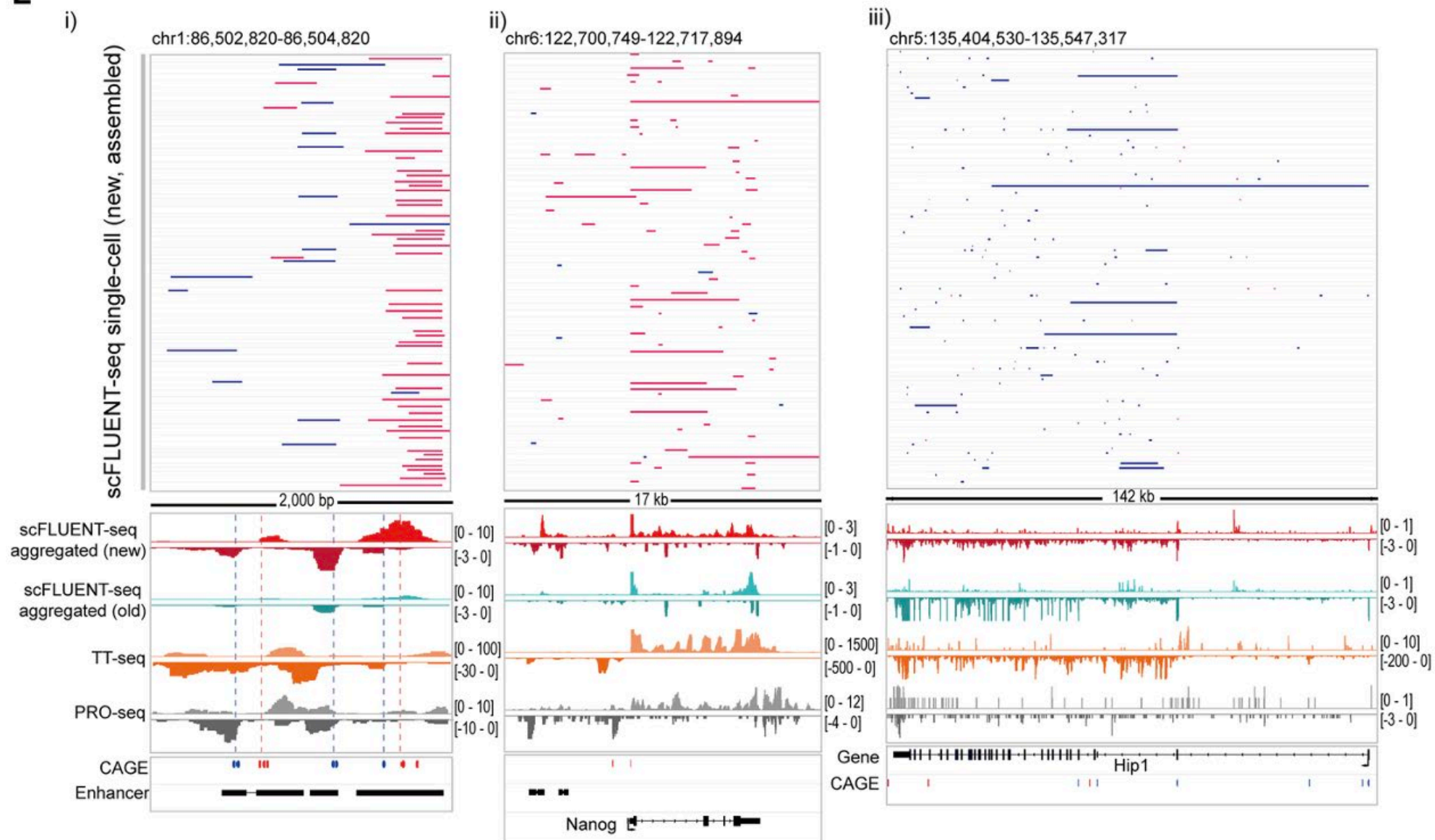


Developmental Plasticity





E



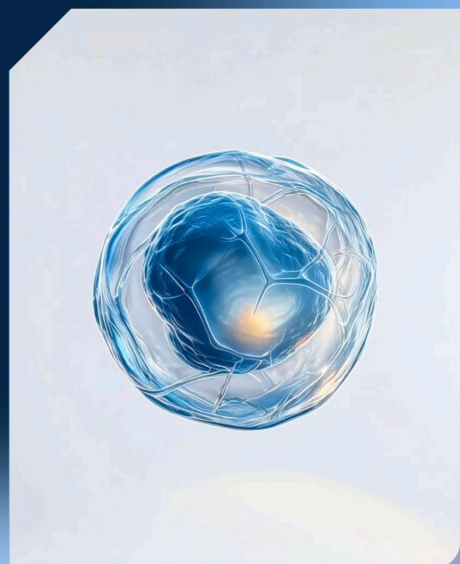
TAHOE

INTRODUCING

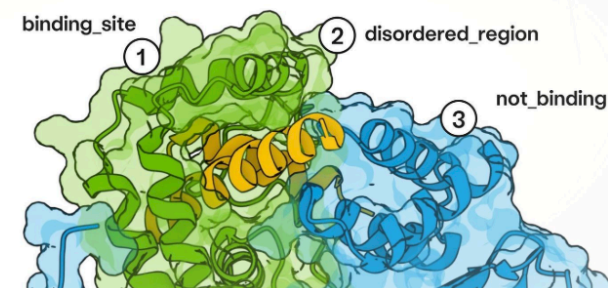
Tahoe-x1

A 3B Parameter Open-Source
Single-Cell Foundation Model

TRY NOW ON HUGGINGFACE



```
entities:
- protein:
  id: G
  sequence: 40..80
- file:
  include:
    - chain:
      id: A
  binding_types:
    - chain:
      id: A
      binding: 123..240
      not_binding: 1..122
  structure_groups:
    - group:
      visibility: 1
      id: A
      res_index: 12..118,
```



Hi ,

As noted on Wednesday during MoML 2025 @ MIT, it's our pleasure to announce the official release of BoltzGen.

BoltzGen is a new, generative model for designing proteins and peptides of any modality that can bind to a wide range of biomolecular targets.

As with Boltz-1 and Boltz-2, BoltzGen is fully open source under the MIT license for unrestricted commercial and academic use, meaning it can be freely used for real-world problems and applications.



Short Report | [Open access](#) | Published: 18 April 2025

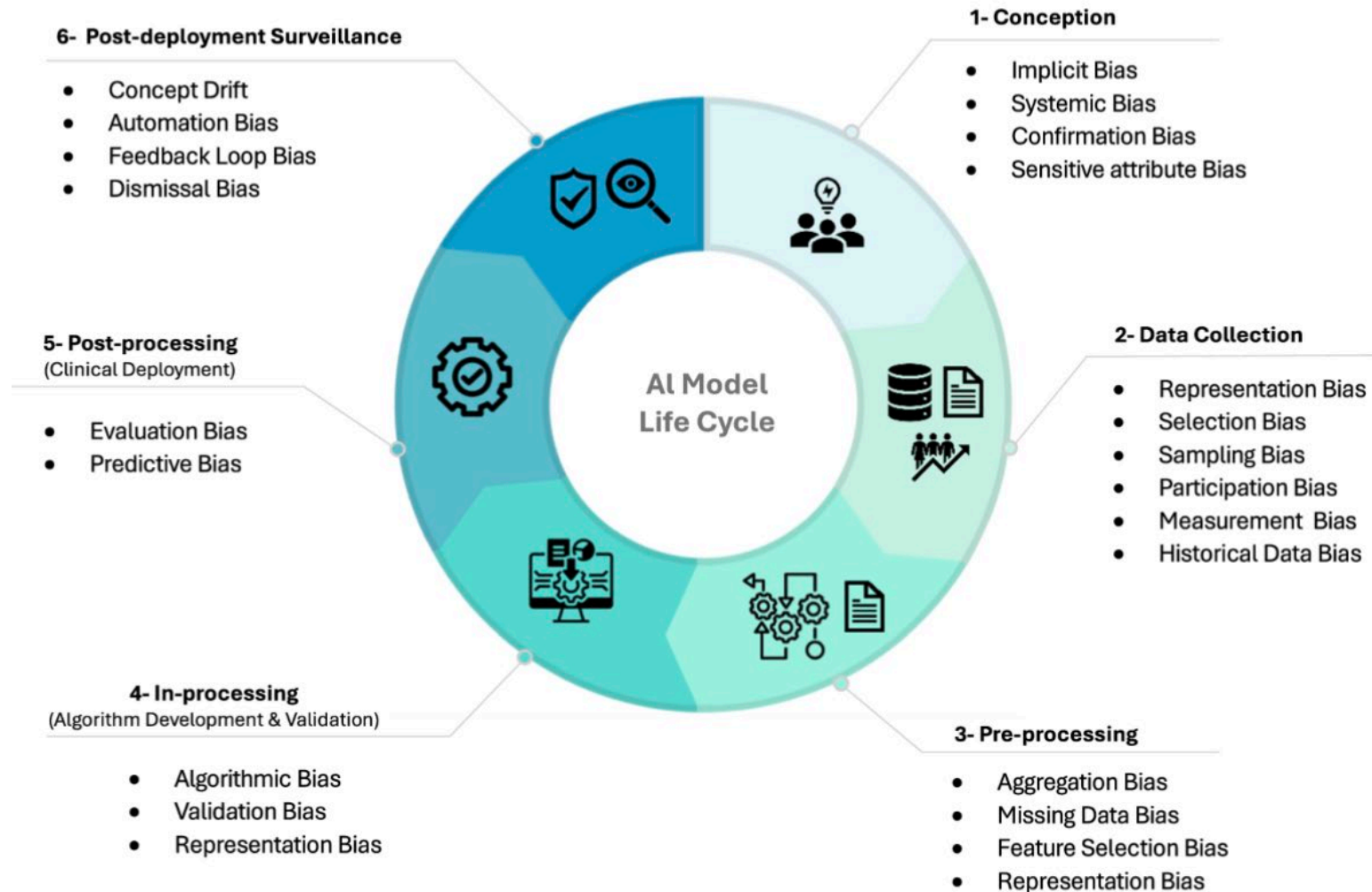
Zero-shot evaluation reveals limitations of single-cell foundation models

[Kasia Z. Kedzierska](#), [Lorin Crawford](#), [Ava P. Amini](#) & [Alex X. Lu](#) 

[Genome Biology](#) **26**, Article number: 101 (2025) | [Cite this article](#)



Bias Pervades Every Level of Omics Research



The Solution - Integrated Mitigation Strategies

- Harmonize and standardize
 - instrumentation protocols
 - data collection protocols
 - analytical workflows across platforms
- Transparency is key
 - Open proprietary systems
 - Document all preprocessing decisions
 - Ensure reproducible computational pipelines



The Solution - Integrated Mitigation Strategies

- Equitable infrastructure
- Rigorous validation
- Robust governance frameworks



AI's Three Horizons: Retrieval (Current Focus)

- Automates access to existing digitized knowledge
- Democratizes information for larger groups—but not universally
- Success metric: Equity of access, benchmark scores



AI's Three Horizons: Recombination (Emerging)

- Fuses siloed, non-digitized, non-English knowledge into new hypotheses
- Connects religious texts, indigenous wisdom, multilingual sources previously inaccessible
- Success metric: Recombination yield—number of testable cross-domain hypotheses generated



AI's Three Horizons: Discovery (The Promise)

- Co-creates new knowledge from weak signals and rare data about underserved populations
- Solves problems that have evaded human brains by interfacing previously disconnected knowledge
- Success metric: Discovery lift—impact on underserved, multilingual, multimodal communities



