

Resource Summary Report

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CellRank

RRID:SCR_022827

Type: Tool

Proper Citation

CellRank (RRID:SCR_022827)

Resource Information

URL: <https://cellrank.readthedocs.io/en/stable/>

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Description: Software package for directed single cell fate mapping in diverse scenarios, including regeneration, reprogramming and disease. Automatically detects initial, intermediate and terminal populations, predicts fate potentials and visualizes continuous gene expression trends along individual lineages. Applied to lineage traced cellular reprogramming data, predicted fate probabilities correctly recover reprogramming outcomes.

Resource Type: software toolkit, software resource

Defining Citation: [PMID:35027767](#)

Keywords: directed single cell fate mapping, detects initial, intermediate and terminal populations, gene expression trends, traced cellular reprogramming data

Funding: NCI P30 CA08748;
BMBF ;
Helmholtz Association Initiative ;
Joachim Herz Stiftung ;
Bayer Foundation

Availability: Free, Available for download, Freely available

Resource Name: CellRank

Resource ID: SCR_022827

Record Creation Time: 20221006T194910+0000

Record Last Update: 20260729T044547+0000

Ratings and Alerts

No rating or validation information has been found for CellRank.

No alerts have been found for CellRank.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 94 mentions in open access literature.

Listed below are recent publications. The full list is available at [PRECISE-TBI](#) .

Rutkowski P, et al. (2025) Ocelli: an open-source tool for the analysis and visualization of developmental multimodal single-cell data. NAR genomics and bioinformatics, 7(2), lqaf040.

Arulsamy K, et al. (2025) SCIG: Machine learning uncovers cell identity genes in single cells by genetic sequence codes. Nucleic acids research, 53(10).

Sun L, et al. (2025) Transcriptomic insights into fate choice of pallial versus subpallial GABAergic neurons. Nature communications, 16(1), 5032.

Zhai X, et al. (2025) Single-Cell Transcriptome Profiling Reveals Conserved IFN γ -IL8 Signaling-Induced Antibacterial Neutrophil States during Bacterial Infection. Advanced science (Weinheim, Baden-Wurttemberg, Germany), 12(37), e04840.

Schindler M, et al. (2025) Comparative single-cell analyses reveal evolutionary repurposing of a conserved gene programme in bat wing development. Nature ecology & evolution, 9(9), 1626.

Henze L, et al. (2025) Testosterone affects female CD4⁺ T cells in healthy individuals and autoimmune liver diseases. JCI insight, 10(8).

Niehrs A, et al. (2025) Transient tissue residency and lymphatic egress define human CD56^{bright} NK cell homeostasis. Nature immunology, 26(11), 2004.

Wang X, et al. (2025) Characterizing resistant cellular states in nasopharyngeal carcinoma during EBV lytic induction. Oncogene, 44(23), 1805.

Dony L, et al. (2025) Chronic exposure to glucocorticoids amplifies inhibitory neuron cell fate during human neurodevelopment in organoids. Science advances, 11(7), eadn8631.

Rivera-Cardona J, et al. (2025) Intrinsic OASL expression licenses interferon induction during influenza A virus infection. bioRxiv : the preprint server for biology.

Frolov A, et al. (2025) Microglia and CD8⁺ T cell activation precede neuronal loss in a murine model of spastic paraplegia 15. The Journal of experimental medicine, 222(7).

König J, et al. (2025) Myeloid Mir34a suppresses colitis-associated colon cancer: characterization of mediators by single-cell RNA sequencing. *Cell death and differentiation*, 32(2), 225.

Hua Y, et al. (2025) SeuratExtend: streamlining single-cell RNA-seq analysis through an integrated and intuitive framework. *GigaScience*, 14.

Yang K, et al. (2025) A multimodal cross-species comparison of pancreas development. *Nature communications*, 16(1), 9355.

Sumanaweera D, et al. (2025) Gene-level alignment of single-cell trajectories. *Nature methods*, 22(1), 68.

Kallio P, et al. (2025) A Multipotent PROX1+ Tumor Stem/Progenitor Cell Population Emerges during Intestinal Tumorigenesis and Mediates Radioresistance in Colorectal Cancer. *Cancer research*, 85(23), 4616.

E W, et al. (2025) Dynamics of Cell Fate Decisions during Chemically Induced Multi-Lineage Trans-Differentiation at Single-Cell Level. *Advanced science (Weinheim, Baden-Wurttemberg, Germany)*, 12(17), e2409642.

Markov NS, et al. (2025) Profibrotic monocyte-derived alveolar macrophages as a biomarker and therapeutic target in systemic sclerosis-associated interstitial lung disease. *bioRxiv : the preprint server for biology*.

Sun Z, et al. (2025) Genomic and Transcriptomic Signatures of SETD1A Disruption in Human Excitatory Neuron Development and Psychiatric Disease Risk. *bioRxiv : the preprint server for biology*.

Pandey AC, et al. (2025) A CRISPR/Cas9-based enhancement of high-throughput single-cell transcriptomics. *Nature communications*, 16(1), 4664.