Image-based profiling for drug discovery: due for a mac

Nature Reviews Drug Discovery
20, 145-159
DOI: 10.1038/s41573-020-00117-w

#	Article	IF	Citations
1	Harnessing machine learning for development of microbiome therapeutics. Gut Microbes, 2021, 13, 1-20.	4.3	47
2	Histopathological and Immune Prognostic Factors in Colo-Rectal Liver Metastases. Cancers, 2021, 13, 1075.	1.7	5
5	Data science in cell imaging. Journal of Cell Science, 2021, 134, .	1.2	15
6	Aquaglyceroporin-3â€™s Expression and Cellular Localization Is Differentially Modulated by Hypoxia in Prostate Cancer Cell Lines. Cells, 2021, 10, 838.	1.8	5
7	A global view of standards for open image data formats and repositories. Nature Methods, 2021, 18, 1440-1446.	9.0	36
9	Machine learning for perturbational single-cell omics. Cell Systems, 2021, 12, 522-537.	2.9	52
10	Interpretable deep learning uncovers cellular properties in label-free live cell images that are predictive of highly metastatic melanoma. Cell Systems, 2021, 12, 733-747.e6.	2.9	48
15	Applying Machine Learning to Stem Cell Culture and Differentiation. Current Protocols, 2021, 1, e261.	1.3	11
16	Shape Up Before You Ship Out: Morphology as a Potential Critical Quality Attribute for Cellular Therapies. Current Opinion in Biomedical Engineering, 2021, 20, 100352.	1.8	2
17	High-content approaches to anthelmintic drug screening. Trends in Parasitology, 2021, 37, 780-789.	1.5	14
18	Success stories of AI in drug discovery - where do things stand?. Expert Opinion on Drug Discovery, 2022, 17, 79-92.	2.5	21
19	Combining Automated Organoid Workflows with Artificial Intelligenceâ€Based Analyses: Opportunities to Build a New Generation of Interdisciplinary Highâ€Throughput Screens for Parkinson's Disease and Beyond. Movement Disorders, 2021, 36, 2745-2762.	2.2	10
21	Plating human iPSC lines on micropatterned substrates reveals role for ITGB1 nsSNV in endoderm formation. Stem Cell Reports, 2021, 16, 2628-2641.	2.3	4
23	Artificial Intelligence and Quantum Computing as the Next Pharma Disruptors. Methods in Molecular Biology, 2022, 2390, 321-347.	0.4	7
24	High-throughput screening for drug discovery targeting the cancer cell-microenvironment interactions in hematological cancers. Expert Opinion on Drug Discovery, 2021, , 1-10.	2.5	4
27	Computer Vision and Machine Learning Techniques for Quantification and Predictive Modeling of Intracellular Antiâ€Cancer Drug Delivery by Nanocarriers. Applied AI Letters, 0, , e50.	1.4	1
28	Development of a chemogenomics library for phenotypic screening. Journal of Cheminformatics, 2021, 13, 91.	2.8	5
31	Classification of Mechanical Properties of Aluminum Foam by Machine Learning. Materials Transactions, 2021, 63, .	0.4	2

#	Article	IF	Citations
32	High Content Image Analysis of Spatiotemporal Proliferation and Differentiation Patterns in 3D Embryoid Body Differentiation Model. Methods in Molecular Biology, 2021, , 1.	0.4	0
34	Computational analyses of mechanism of action (MoA): data, methods and integration. RSC Chemical Biology, 2022, 3, 170-200.	2.0	32
35	Nucleus segmentation: towards automated solutions. Trends in Cell Biology, 2022, 32, 295-310.	3.6	31
36	Machine Learning Enables Accurate and Rapid Prediction of Active Molecules Against Breast Cancer Cells. Frontiers in Pharmacology, 2021, 12, 796534.	1.6	11
37	Image-Based Annotation of Chemogenomic Libraries for Phenotypic Screening. Molecules, 2022, 27, 1439.	1.7	19
38	Predicting drug polypharmacology from cell morphology readouts using variational autoencoder latent space arithmetic. PLoS Computational Biology, 2022, 18, e1009888.	1.5	17
39	Integrating deep learning and unbiased automated high-content screening to identify complex disease signatures in human fibroblasts. Nature Communications, 2022, 13, 1590.	5.8	29
40	Cell Painting predicts impact of lung cancer variants. Molecular Biology of the Cell, 2022, 33, mbcE21110538.	0.9	25
41	A multiplexed epitope barcoding strategy that enables dynamic cellular phenotypic screens. Cell Systems, 2022, 13, 376-387.e8.	2.9	6
43	OpenCell: Endogenous tagging for the cartography of human cellular organization. Science, 2022, 375, eabi6983.	6.0	174
45	Decoding cellular communication â€" an information theoretic perspective on cytokine and endocrine signaling. Current Opinion in Endocrine and Metabolic Research, 2022, , 100351.	0.6	2
46	BioProfiling.jl: profiling biological perturbations with high-content imaging in single cells and heterogeneous populations. Bioinformatics, 2022, 38, 1692-1699.	1.8	5
47	Tools for Decoding Ubiquitin Signaling in DNA Repair. Frontiers in Cell and Developmental Biology, 2021, 9, 760226.	1.8	4
48	A multiparametric activity profiling platform for neuron disease phenotyping and drug screening. Molecular Biology of the Cell, 2022, 33, mbcE21100481.	0.9	4
49	Synergy between machine learning and natural products cheminformatics: Application to the lead discovery of anthraquinone derivatives. Chemical Biology and Drug Design, 2022, 100, 185-217.	1.5	5
50	In-cell NMR: Why and how?. Progress in Nuclear Magnetic Resonance Spectroscopy, 2022, 132-133, 1-112.	3.9	29
51	Senescence-associated morphological profiles (SAMPs): an image-based phenotypic profiling method for evaluating the inter and intra model heterogeneity of senescence. Aging, 2022, 14, 4220-4246.	1.4	12
53	Phenotypic drug discovery: recent successes, lessons learned and new directions. Nature Reviews Drug Discovery, 2022, 21, 899-914.	21.5	81

#	Article	IF	Citations
54	Label-free prediction of cell painting from brightfield images. Scientific Reports, 2022, 12, .	1.6	17
57	Label-free morphological sub-population cytometry for sensitive phenotypic screening of heterogenous neural disease model cells. Scientific Reports, 2022, 12, .	1.6	1
58	Construction and Analysis of Visual Communication Design Curriculum Based on Random Matrix. Mathematical Problems in Engineering, 2022, 2022, 1-8.	0.6	2
59	Learning biophysical determinants of cell fate with deep neural networks. Nature Machine Intelligence, 2022, 4, 636-644.	8.3	14
62	LiveCellMiner: A new tool to analyze mitotic progression. PLoS ONE, 2022, 17, e0270923.	1.1	10
63	Cell Morphological Profiling Enables High-Throughput Screening for PROteolysis TArgeting Chimera (PROTAC) Phenotypic Signature. ACS Chemical Biology, 2022, 17, 1733-1744.	1.6	21
64	Gene Identification and Potential Drug Therapy for Drug-Resistant Melanoma with Bioinformatics and Deep Learning Technology. Disease Markers, 2022, 2022, 1-13.	0.6	1
65	Learning the missing channel. Nature Machine Intelligence, 2022, 4, 616-617.	8.3	0
66	Self-supervised deep learning encodes high-resolution features of protein subcellular localization. Nature Methods, 2022, 19, 995-1003.	9.0	41
67	Modulating biomolecular condensates: a novel approach to drug discovery. Nature Reviews Drug Discovery, 2022, 21, 841-862.	21.5	88
68	Early Pharmacological Profiling of Antiproliferative Compounds by Live Cell Imaging. Molecules, 2022, 27, 5261.	1.7	2
69	Identification of Potential Drug Therapy for Dermatofibrosarcoma Protuberans with Bioinformatics and Deep Learning Technology. Current Computer-Aided Drug Design, 2022, 18, 393-405.	0.8	4
70	Application of Intelligent Image Matching and Visual Communication in Brand Design. Computational Intelligence and Neuroscience, 2022, 2022, 1-9.	1.1	1
72	BUSINESS MODEL CONFIGURATIONS IN DIGITAL HEALTHCAREâ€"A GERMAN CASE STUDY ABOUT DIGITAL TRANSFORMATION. International Journal of Innovation Management, 2022, 26, .	0.7	6
73	Current and future approaches for in vitro hit discovery in diabetes mellitus. Drug Discovery Today, 2022, 27, 103331.	3.2	2
75	Deep learning for cell shape analysis. , 2023, , 375-390.		0
76	Patient-by-Patient Deep Transfer Learning for Drug-Response Profiling Using Confocal Fluorescence Microscopy of Pediatric Patient-Derived Tumor-Cell Spheroids. IEEE Transactions on Medical Imaging, 2022, 41, 3981-3999.	5.4	2
77	Reverse Phase Protein Arrays in cancer stem cells. Methods in Cell Biology, 2022, , 33-61.	0.5	2

#	Article	IF	Citations
78	Morphological signatures of actin organization in single cells accurately classify genetic perturbations using CNNs with transfer learning. Soft Matter, 2022, 18, 8342-8354.	1.2	1
79	Virtual Screening-Based Drug Development for the Treatment of Nervous System Diseases. Current Neuropharmacology, 2023, 21, 2447-2464.	1.4	2
80	Virtual screening for small-molecule pathway regulators by image-profile matching. Cell Systems, 2022, 13, 724-736.e9.	2.9	18
81	Deep Learning in Cell Image Analysis. , 2022, 2022, .		8
82	Bioinformatics in bioscience and bioengineering: Recent advances, applications, and perspectives. Journal of Bioscience and Bioengineering, 2022, 134, 363-373.	1.1	14
83	Artificial intelligence foundation for therapeutic science. Nature Chemical Biology, 2022, 18, 1033-1036.	3.9	33
84	Orthogonally-tunable and ER-targeting fluorophores detect avian influenza virus early infection. Nature Communications, 2022, 13, .	5.8	6
86	Microfluidics for long-term single-cell time-lapse microscopy: Advances and applications. Frontiers in Bioengineering and Biotechnology, 0, 10, .	2.0	7
87	Morphology and gene expression profiling provide complementary information for mapping cell state. Cell Systems, 2022, 13, 911-923.e9.	2.9	35
89	TNTdetect.AI: A Deep Learning Model for Automated Detection and Counting of Tunneling Nanotubes in Microscopy Images. Cancers, 2022, 14, 4958.	1.7	3
90	Learning Hybrid Behavior Patterns for Multimedia Recommendation. , 2022, , .		11
92	The phenotypic landscape of essential human genes. Cell, 2022, 185, 4634-4653.e22.	13.5	45
93	High-dimensional gene expression and morphology profiles of cells across 28,000 genetic and chemical perturbations. Nature Methods, 2022, 19, 1550-1557.	9.0	34
94	Application of Machine Learning in Spatial Proteomics. Journal of Chemical Information and Modeling, 2022, 62, 5875-5895.	2.5	16
96	Cell morphology-guided <i>de novo</i> hit design by conditioning GANs on phenotypic image features. , 2023, 2, 91-102.		4
97	Prediction of inotropic effect based on calcium transients in human iPSC-derived cardiomyocytes and machine learning. Toxicology and Applied Pharmacology, 2023, 459, 116342.	1.3	3
98	Antibiotic discovery in the artificial intelligence era. Annals of the New York Academy of Sciences, 2023, 1519, 74-93.	1.8	13
102	Using chemical and biological data to predict drug toxicity. SLAS Discovery, 2023, 28, 53-64.	1.4	17

#	Article	IF	Citations
105	EFMC: Trends in Medicinal Chemistry and Chemical Biology. ChemBioChem, 2023, 24, .	1.3	2
106	Advancing Targeted Protein Degradation via Multiomics Profiling and Artificial Intelligence. Journal of the American Chemical Society, 2023, 145, 2711-2732.	6.6	8
108	The evolving role of investigative toxicology in the pharmaceutical industry. Nature Reviews Drug Discovery, 2023, 22, 317-335.	21.5	29
109	Application of Cell Painting for chemical hazard evaluation in support of screening-level chemical assessments. Toxicology and Applied Pharmacology, 2023, 468, 116513.	1.3	6
110	Yearning for machine learning: applications for the classification and characterisation of senescence. Cell and Tissue Research, 2023, 394, 1-16.	1.5	4
111	Combining molecular and cell painting image data for mechanism of action prediction. Artificial Intelligence in the Life Sciences, 2023, 3, 100060.	1.6	4
112	Linking chemicals, genes and morphological perturbations to diseases. Toxicology and Applied Pharmacology, 2023, 461, 116407.	1.3	1
116	Artificial intelligence and machine learning disciplines with the potential to improve the nanotoxicology and nanomedicine fields: a comprehensive review. Archives of Toxicology, 2023, 97, 963-979.	1.9	32
117	Interpreting Imageâ€based Profiles using Similarity Clustering and Singleâ€Cell Visualization. Current Protocols, 2023, 3, .	1.3	6
118	Selection of Optimal Cell Lines for High-Content Phenotypic Screening. ACS Chemical Biology, 2023, 18, 679-685.	1.6	4
119	Morphological Profiling Identifies the Motor Protein Eg5 as Cellular Target of Spirooxindoles. Angewandte Chemie - International Edition, 2023, 62, .	7.2	2
120	Morphological Profiling Identifies the Motor Protein Eg5 as Cellular Target of Spirooxindoles. Angewandte Chemie, 2023, 135, .	1.6	0
121	Drug discovery processes: When and where the rubber meets the road. , 2023, , 339-415.		1
122	Host Cell Targets for Unconventional Antivirals against RNA Viruses. Viruses, 2023, 15, 776.	1.5	7
123	Using Transcriptomics and Cell Morphology Data in Drug Discovery: The Long Road to Practice. ACS Medicinal Chemistry Letters, 2023, 14, 386-395.	1.3	2
125	Reference compounds for characterizing cellular injury in high-content cellular morphology assays. Nature Communications, 2023, 14, .	5.8	4
126	Predicting compound activity from phenotypic profiles and chemical structures. Nature Communications, 2023, 14, .	5.8	15
127	Lithium-ion battery thermal management via advanced cooling parameters: State-of-the-art review on application of machine learning with exergy, economic and environmental analysis. Journal of the Taiwan Institute of Chemical Engineers, 2023, 148, 104854.	2.7	3

#	Article	IF	Citations
128	Mode of action in toxicology. , 2024, , 459-465.		0
129	Multisite assessment of reproducibility in highâ€content cell migration imaging data. Molecular Systems Biology, 2023, 19, .	3.2	4
131	Lead Generation. , 2023, , 682-719.		0
140	End-to-End Classification of Cell-Cycle Stages with Center-Cell Focus Tracker Using Recurrent Neural Networks. , 2023, , .		1
166	Genetically engineered bacteria: a new frontier in targeted drug delivery. Journal of Materials Chemistry B, 2023, 11, 10072-10087.	2.9	4
168	Chemical evolution of natural product structure for drug discovery. Annual Reports in Medicinal Chemistry, 2023, , 1-53.	0.5	0
178	Class-Guided Image-to-Image Diffusion: Cell Painting from Brightfield Images with Class Labels. , 2023, , .		1
179	An Interpretable Framework to Characterize Compound Treatments on Filamentous Fungi using Cell Painting and Deep Metric Learning. , 2023, , .		0
191	Artificial Intelligence in Drug Discovery and Development. , 2023, , 1-38.		0