Cell painting: from images to innovation.

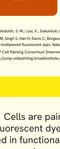
What is cell painting?

Cell painting is an imaging-based phenotypic profiling method that measures phenotypic features to characterize the biological responses of cells to perturbagens.

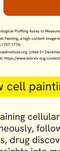
Cell painting in numbers

The cell painting process features*:

6
Fluorescent dyes



8
Diverse cell Components labeled



1,000s
of morphological features extracted

*Based on the JUMP-CP Cell Painting Protocol V3.

The history of cell painting

2013
First iteration published by Gustafsdottir, et al.[1]

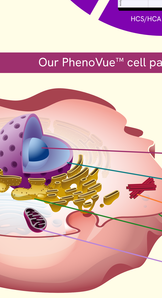
2016
Protocol modified by Bray et al., and cell painting term first used[2]

2022
Method optimized by the JUMP-CP consortium to create cell painting protocol V3

1. Gustafsdottir, S. M., Lotz, V., Sokolnicki, K. L., et al. Multiplex Cytological Profiling Assay to Measure Diverse Cellular States. PLoS ONE, 2013.
2. Bray, M., Singh, S., Han, H., Davis, C., Borgeson, B., Hartland, C. et al. Cell Painting, a high-content image-based assay for morphological profiling using multiplexed fluorescent dyes. Nature Protocols. 2016;11(9):1757-1774.
3. JUMP Cell Painting Consortium [Internet]. Jump-cell-painting. broadinstitute.org. [cited 01 December 2022]. Available from: https://jump-cellpainting.broadinstitute.org/. Preprint available at: https://www.biorxiv.org/content/10.1101/2022.07.13.499917v1

How cell painting works

Cells are painted by staining cellular compartments with different fluorescent dyes simultaneously, followed by imaging and analysis. It's used in functional genomics, drug discovery, efficacy, toxicity assessment, and screening for insights into mechanism of action (MOA).



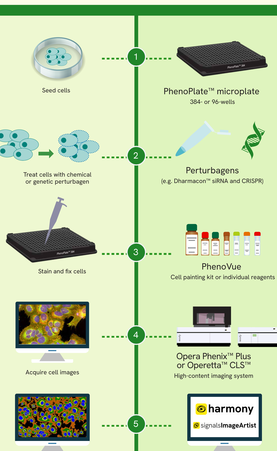
Why cell painting is effective

Unlike target-based screening, phenotypic screening uses cell painting to investigate how drugs, compounds, and genes affect the cellular phenotype without reference to a target.

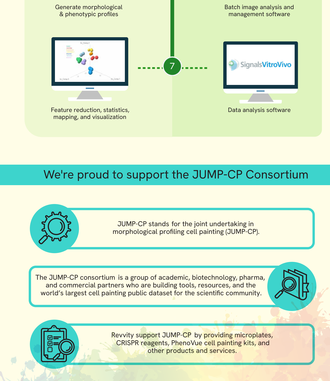
Cell painting is a standardized phenotypic screening approach which:

- Profiles thousands of features
- Enables discovery of subtle changes
- Can provide insight into MOA

What you need for cell painting



Our PhenoVue™ cell painting kit components



Our cell painting solutions

We're proud to support the JUMP-CP Consortium

JUMP-CP stands for the joint undertaking in morphological profiling cell painting (JUMP-CP).

The JUMP-CP consortium is a group of academic, biotechnology, pharma, and commercial partners who are building tools, resources, and the world's largest cell painting public dataset for the scientific community.

Revvity support JUMP-CP by providing microplates, CRISPR reagents, PhenoVue cell painting kits, and other products and services.

For more information, visit: www.revvity.com