

Robust open source informatics workflow for high-throughput microscopy

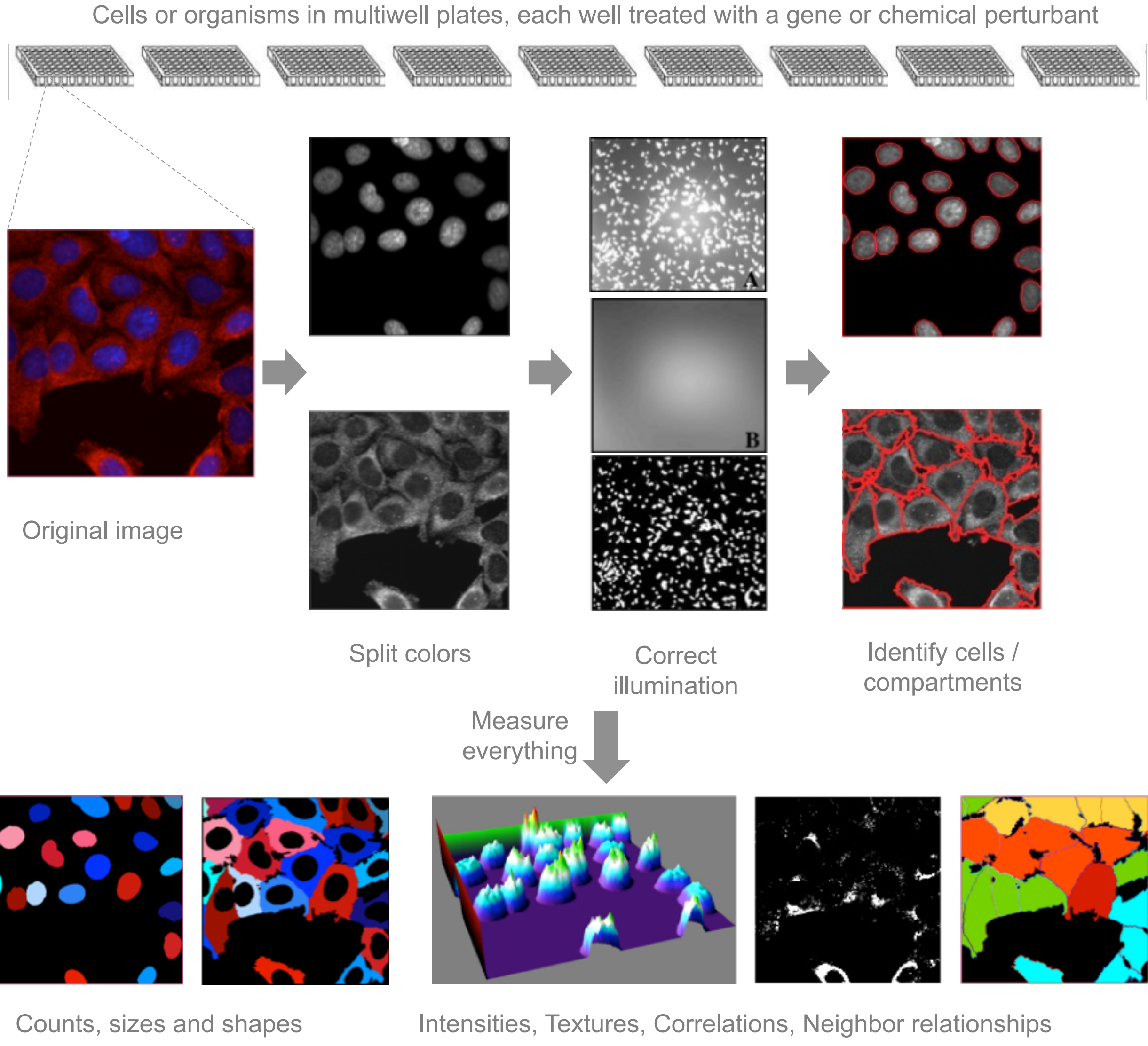


SHANTANU SINGH

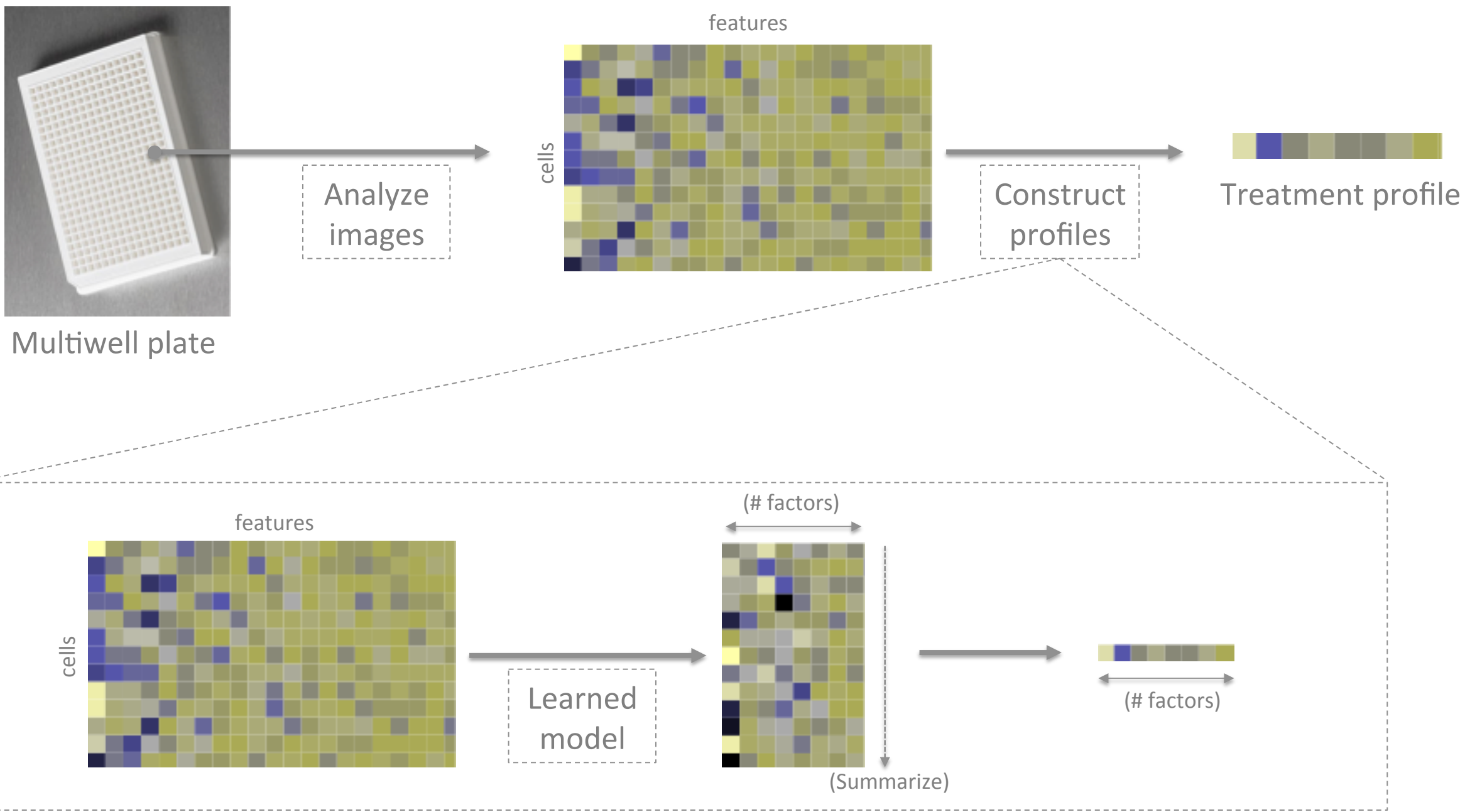
Imaging Platform, Broad Institute of MIT and Harvard

Large-scale imaging experiments

Image analysis pipelines can quantify images

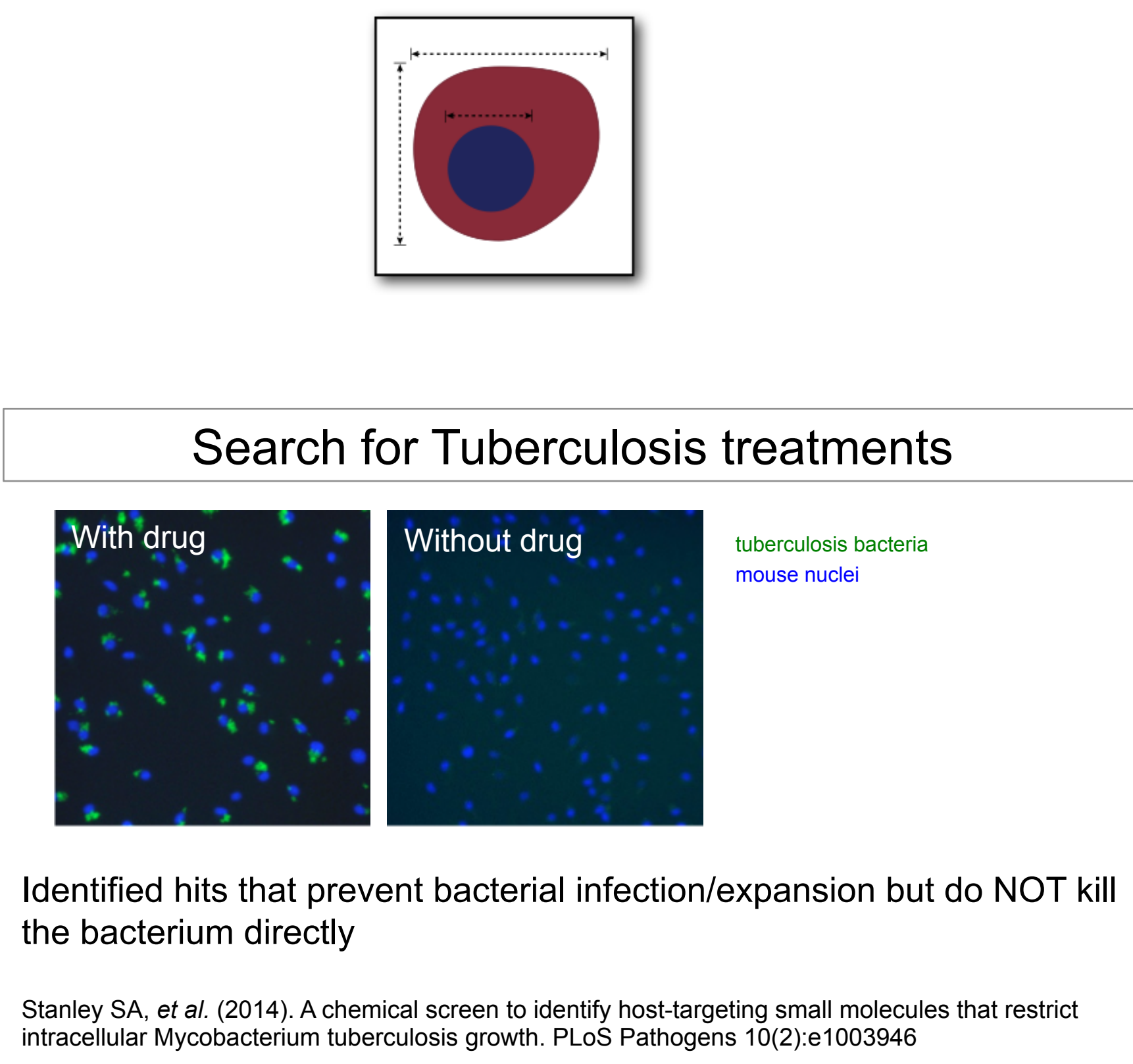


Quantified images can be used to create perturbation profiles

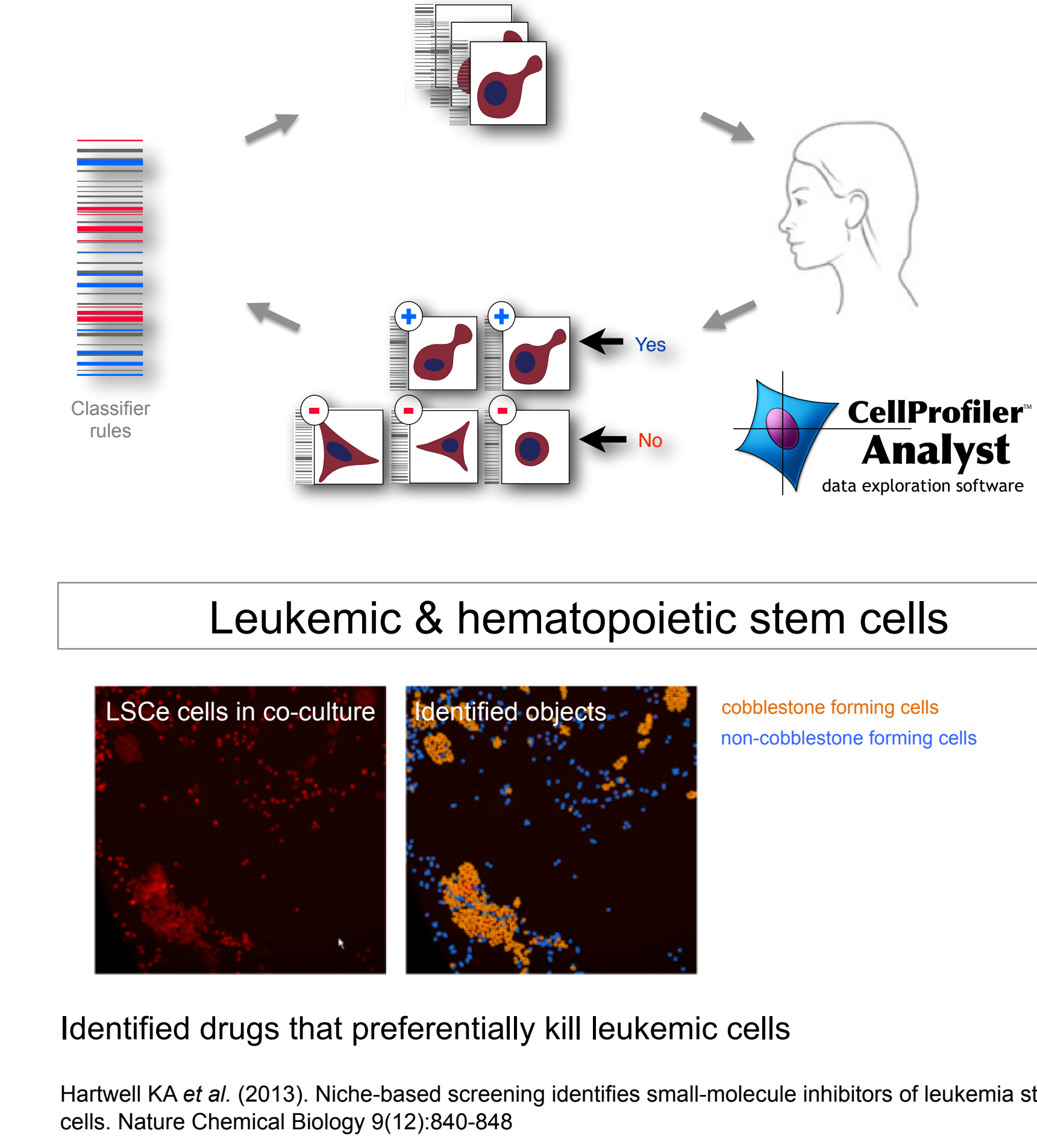


Case Studies

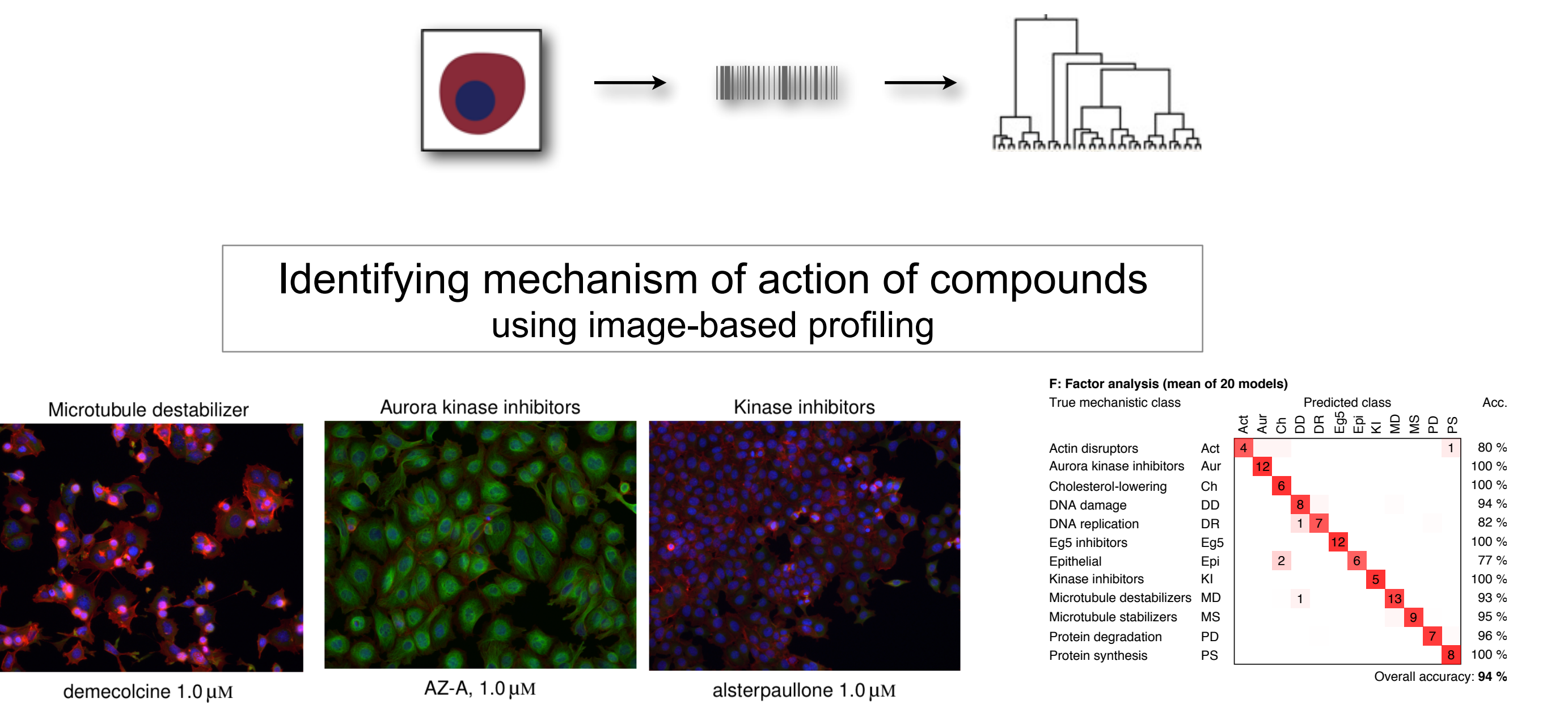
First Wave: Measure known phenotypes



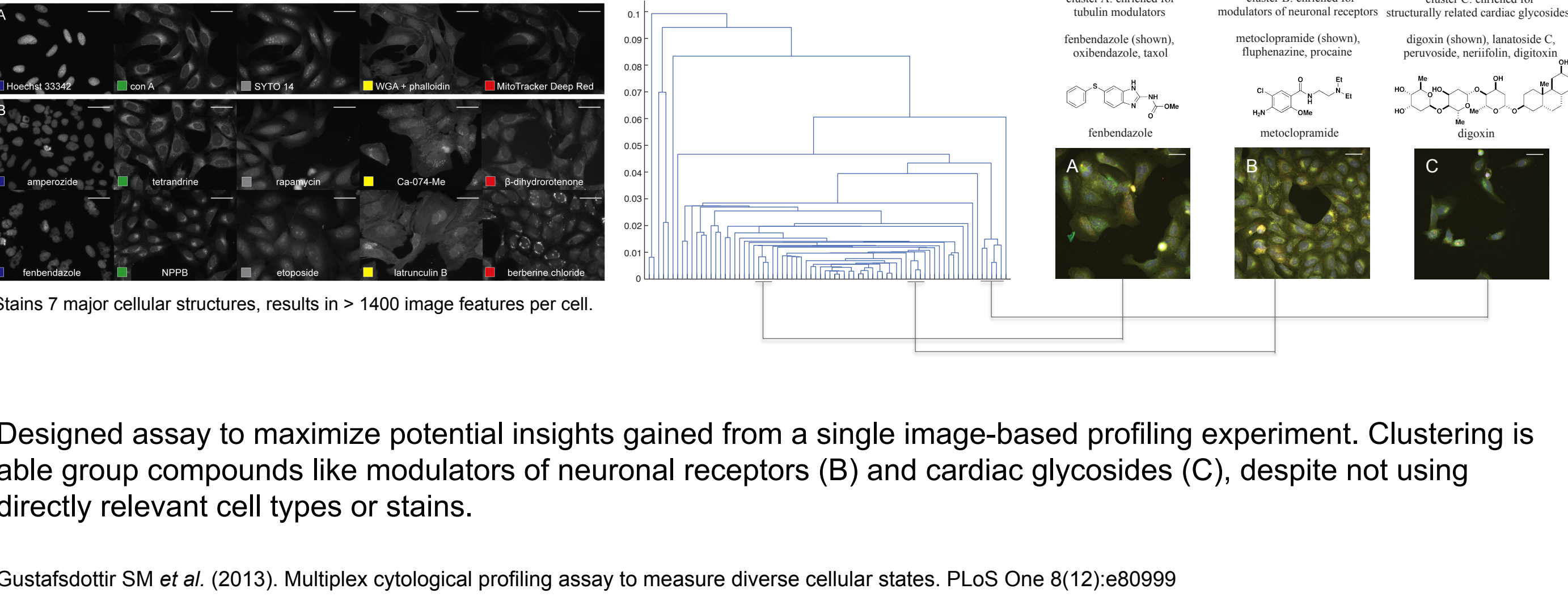
Second Wave: Train for known phenotypes



Third Wave: Profile to identify phenotypes and characterize samples



Profiling compound libraries using "CellPainting"

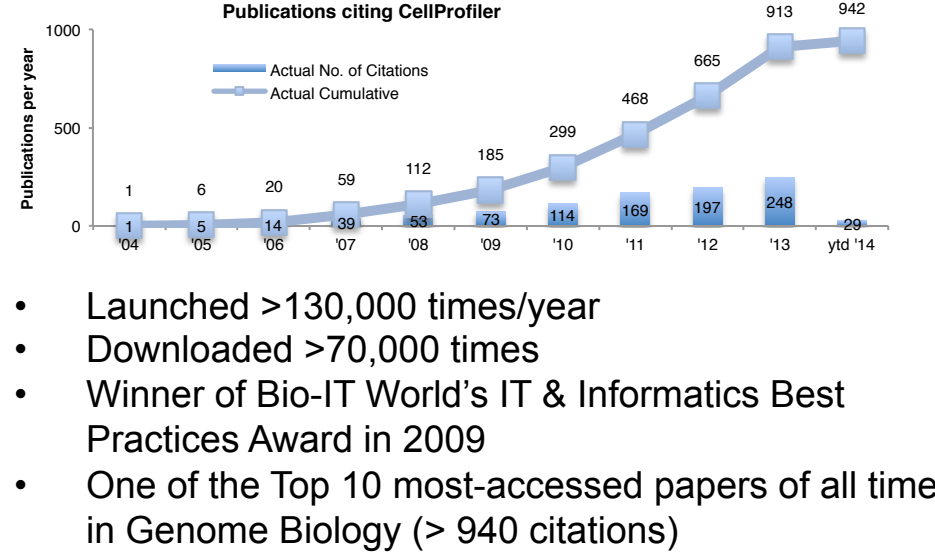
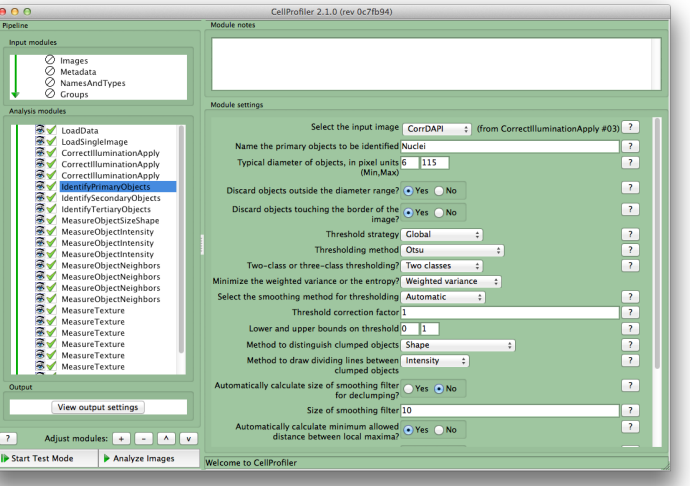


Open source software

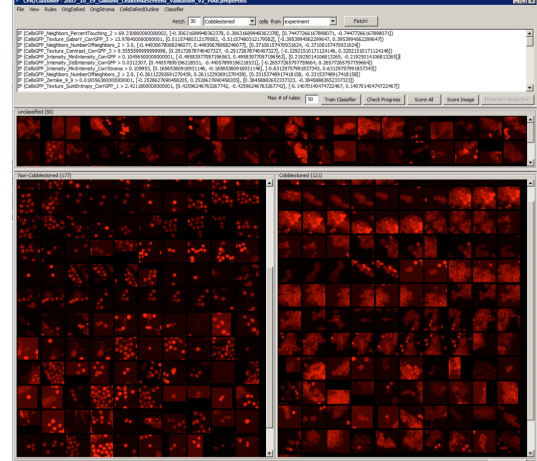


CellProfiler cell image analysis software is designed for biologists without training in computer vision or programming to quantitatively measure phenotypes from thousands of images automatically

Carpenter AE *et al.* (2006) CellProfiler: image analysis software for identifying and quantifying cell phenotypes. Genome Biology, 7:R100.



- Getting Started
1. Download CellProfiler at cellprofiler.org (Windows, Mac, Linux)
 2. View CellProfiler demo movies
 3. Try example pipelines – website has several biological assays, pick the ones that most resemble your phenotypes of interest
 4. Go online for user support - www.cellprofiler.org/forum/



CellProfiler Analyst is an interactive data exploration tool that includes an iterative machine learning system which can be trained to recognize complicated and subtle phenotypes.

Support

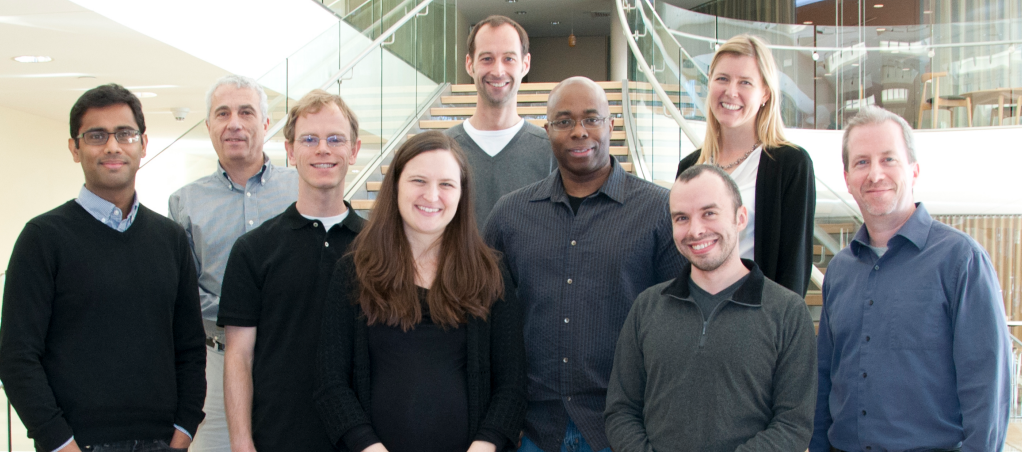
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