

Automated image analysis of microscopy based cell assays using ImageJ
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Recent improvements in automated microscopy facilitate the acquisition of large data volumes within a short period of time. Prominent examples for these kinds of experiments are genome-wide microscopy based screens which have been performed recently [1,2]. But even smaller scale projects require reliable and reproducible automated image analysis as several thousand images (or even more) can easily be recorded on one microscope over night. We present a strategy to use a program called ImageJ [3] for automated image analysis. ImageJ is becoming more and more popular for the manual analysis and display of microscopic images. Its Java source code is platform independent, freely available and in the public domain making it a versatile tool especially for universities and non-profit based research institutes.

Our approach for automated image analysis is to make use of the internal, easy to use macro-language of ImageJ. This allows even users without in-depth programming skills to develop and perform automated image analysis protocols for large datasets. As a proof of principle we present the analysis of a data set consisting of 25.000 images (~ 50GB) coming from a time-lapse experiment.

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