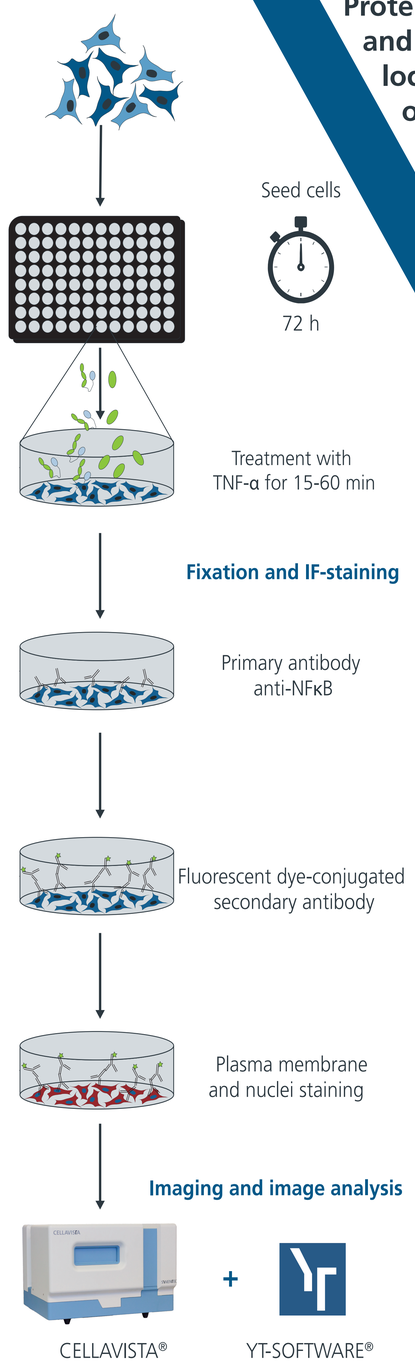
Quantitative Analysis of Protein Translocation Using High-Content Imaging and YT-SOFTWARE®

Willms, A.[1]; Guledani, A.[1]; Kollenda, S.[1]; Stoehr, M.[1]; Werdelmann, B.[1]; Trauzold, A.[2]; Sebens, S.[2]; Geisen, R.[1] & Pirsch, M.[1]

[1]SYNENTEC GmbH, Elmshorn, Germany; [2]Institute for Experimental Cancer Research, CAU + UKSH, Kiel, Germany

Method

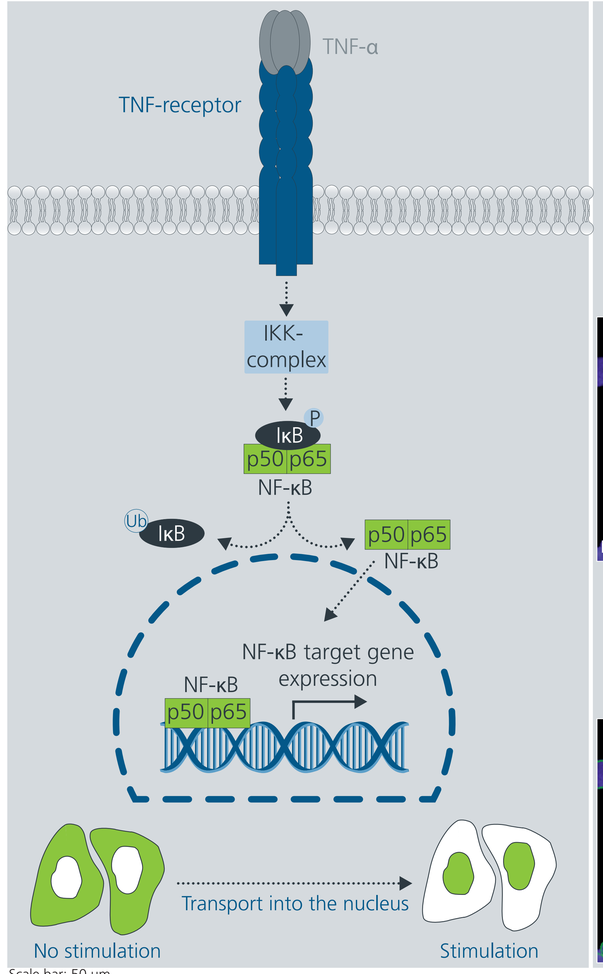


Introduction

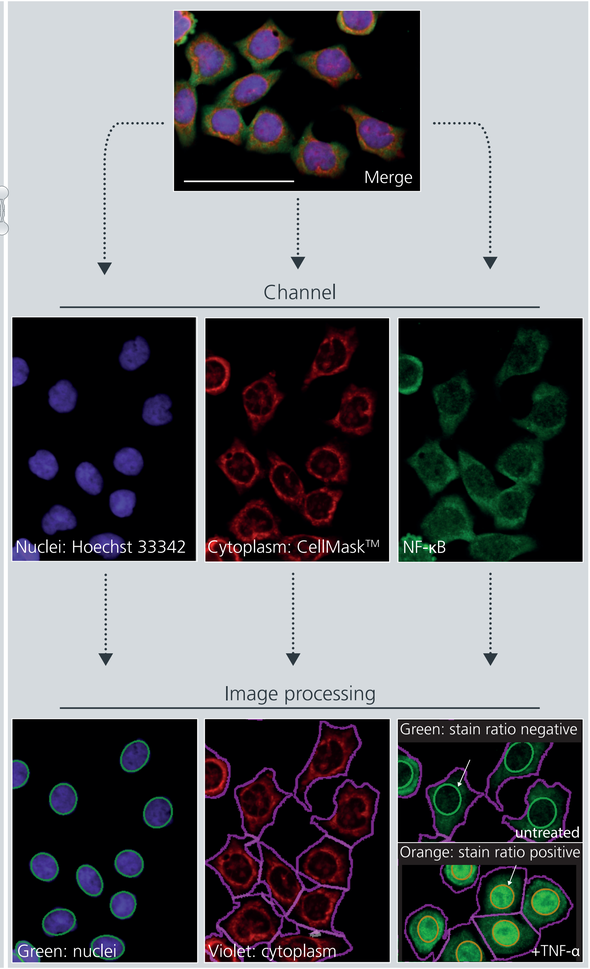
Protein translocation between the cytosol and nucleus is a fundamental process for maintaining cellular functions. Therefore, the development of easy and fast methods to visualize and quantify protein translocation is important in various scientific fields. A commonly used method for analyzing the localization of proteins in the cell is immunofluorescence staining. In this study, we have developed and implemented a new image analysis tool in our YT-SOFTWARE® that enables imaging and image analysis within the same software platform. To validate our new application, we conducted translocation assays in a 96-well microplate format of NF-κB by inducing its trafficking with the cytokine TNF-α in A549 cancer cells. The cells were stained and the stainings were imaged using our automated imagers CELLAVISTA® 4K or NYONE® Scientific. Protein translocation was then quantified using our new image analysis application Translocation (1F) of YT-SOFTWARE®.

Results

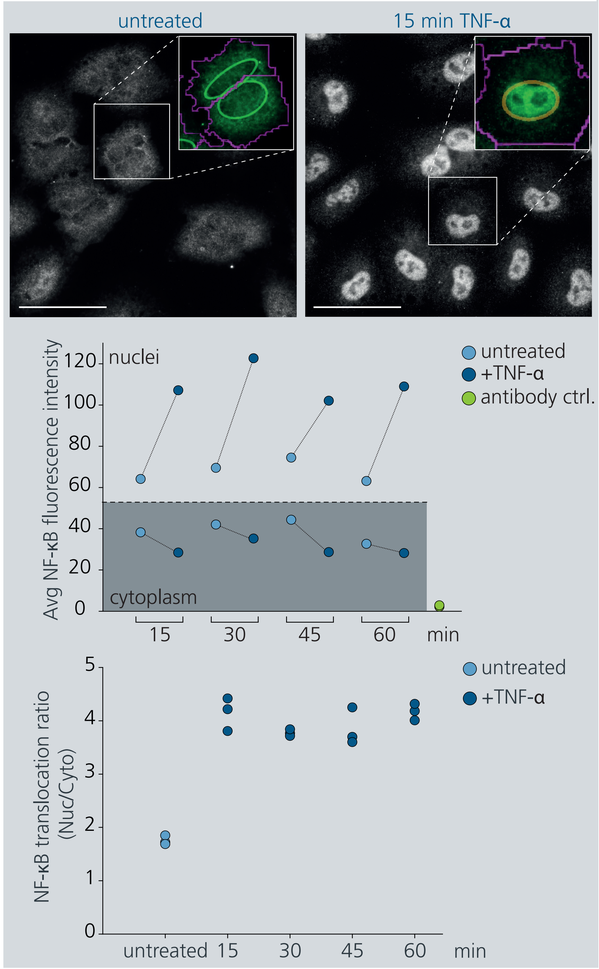
NF-κB Signaling Pathway



Development of a Protein Translocation Application



Analysis of NF-κB Translocation in A549 Cells



Scale bar: 50 µm

Benefits of SYNENTEC's Translocation Assay

- Easy handling and suitable for automation.
- Automated and fast imaging of multiple samples with minimal hands-on time.
- No need for slides: IF-staining and imaging in microplates enable high throughput.
- All in one software platform: imaging, image analysis and calculation of the *translocation ratio*.

Institut für Experimentelle Tumor-forschung

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Contact
Anna Willms and Reinhild Geisen
A.Willms@synentec.com, R.Geisen@synentec.com