



## Quantitative digital microscopy immunohistochemistry evaluation method for breast cancer slides with Mirax

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### Abstract

**Introduction:** Immunohistochemical (IHC) evaluation might be very difficult since minor changes in staining intensity and localization should be noticed and interpreted. In breast cancer IHC has important clinical relevance, because the hormonal and anti-HER2 treatment is built up on the results of IHC. HER2 diagnostics is far more complicated, while the IHC '++' cases need further evaluation by FISH to be able to decide upon the start of anti-HER2 treatment.

**Material and Methods:** Our aim was to determine the applicability and benefits of a digital microscopy in routine pathological IHC-evaluation. Mirax developed by 3DHistech provides a digital pathology microscopic platform for the evaluation of electronic slides: IH-Lab module handles and inspects the slides parallelly, while HistoQuant automatically performs quantitative evaluation of staining intensity. After routine evaluation by light microscopy the slides (progesterone, estrogen, Ki-67, Her2, p53) are also analyzed by the Mirax platform and the semiquantitative results are compared with the results of the digitalized method.

**Results:** We define the algorithm to efficiently help the IHC-evaluation by Mirax-platform: number, measure and allocation of applied scoring grids, refinement of IHC-scoring (eg. differentiation within '++' Her2 cases), automation and standardization of quantitative evaluation would be provided.

**Conclusion:** Digital microscopy can be useful in quantitative and standardized evaluation of IHC to further optimize theranostics.

