

P014 Advanced Microscopical Non-Invasive Examination of the Supposed Migrastatics for Impact on In Vitro Cell Migration

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Abstract - Introduction

Live H1299 lung carcinoma cells in vitro were exposed to selected drugs with a presumed antimigration activity that implies antimetastatic potential and time-lapse examined with Coherence Controlled Holography Microscopy (CCHM) with holographic incoherent light Quantitative Phase Imaging (hiQPI). It is a methodology that online evaluates the dynamics of morphology, migration, and the growth of tumor cells by weighing them.

Abstract - Material and method

Q-Phase (Telight, Brno, Czech Republic) as a commercially available CCHM was employed for the hiQPI of cells. Four putative migrastatics, vincristine (VIN, 100 nM), doxycycline (DOXY, 1 mg/ml), and 4-hydroxyacetophenone (4HAP, 4 μM) were tested with H1299, using Ibidi μ-Slide VI 0.4 for 20 hours recording with Q-Phase. Cells were cultivated at 37°C in a humidified incubator with 3.5% CO₂ in standard Eagle MEM medium with 10% fetal bovine serum, 20 μM gentamicin, and 2mM L-glutamine. For the time-lapse recording, the medium was enriched with 20 mM HEPES to maintain pH 7.4.

Abstract - Results and discussion

This research showed that on the cancer cell line H1299 the vincristine and doxycycline had the greatest migrastatic effect in the 2D environment under given conditions. These putative migrastatics showed an effect on the dynamics of migration and cell morphology.

Abstract - Conclusion

The hiQPI screening is a reliable and economical approach to in vitro introductory testing of potential migrastatics. hiQPI combines high-precision cell imaging, which is important for cell segmentation and thus tracking cell trajectories, with cell growth measurements, thus providing a comprehensive assessment of a potential risk of some cytopathic issues.