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Cover Image Description

Named after the Michigan Cancer Foundation, the institute where it was first developed by Herbert Soule and colleagues, the MCF-7 cell line is an extensively studied human breast cancer cell line. It was derived in 1973 from a Caucasian woman with metastatic breast cancer and is the most well studied breast cancer cell line. Studies carried out with the MCF-7 cell line have yielded results that have played an essential role in expanding the horizons of breast cancer research. This image portrays an MCF-7 cell transfected with a plasmid that encodes Green Fluorescent Protein tagged Von Hippel-Lindau (VHL-GFP). VHL is a tumor suppressor gene, whose protein product functions as an E3 ubiquitin ligase that directs the degradation of hypoxia inducible factor (HIF), a transcription factor involved in regulating oxygen dependent gene expression. The purpose of this transfection was to observe the localization of VHL-GFP in human cancer cells under untreated, normal conditions. This image shows that VHL-GFP has nucleocytoplasmic disposition in untreated MCF-7 cells.

The image was taken and processed by using the new Zeiss super resolution fluorescence microscope at Simon Fraser University, Burnaby, Canada on July 18, 2019. The GFP tag was excited by exposing the cells to blue light, with a wavelength of 488 nm & observed using the 62× oil immersion lens.

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