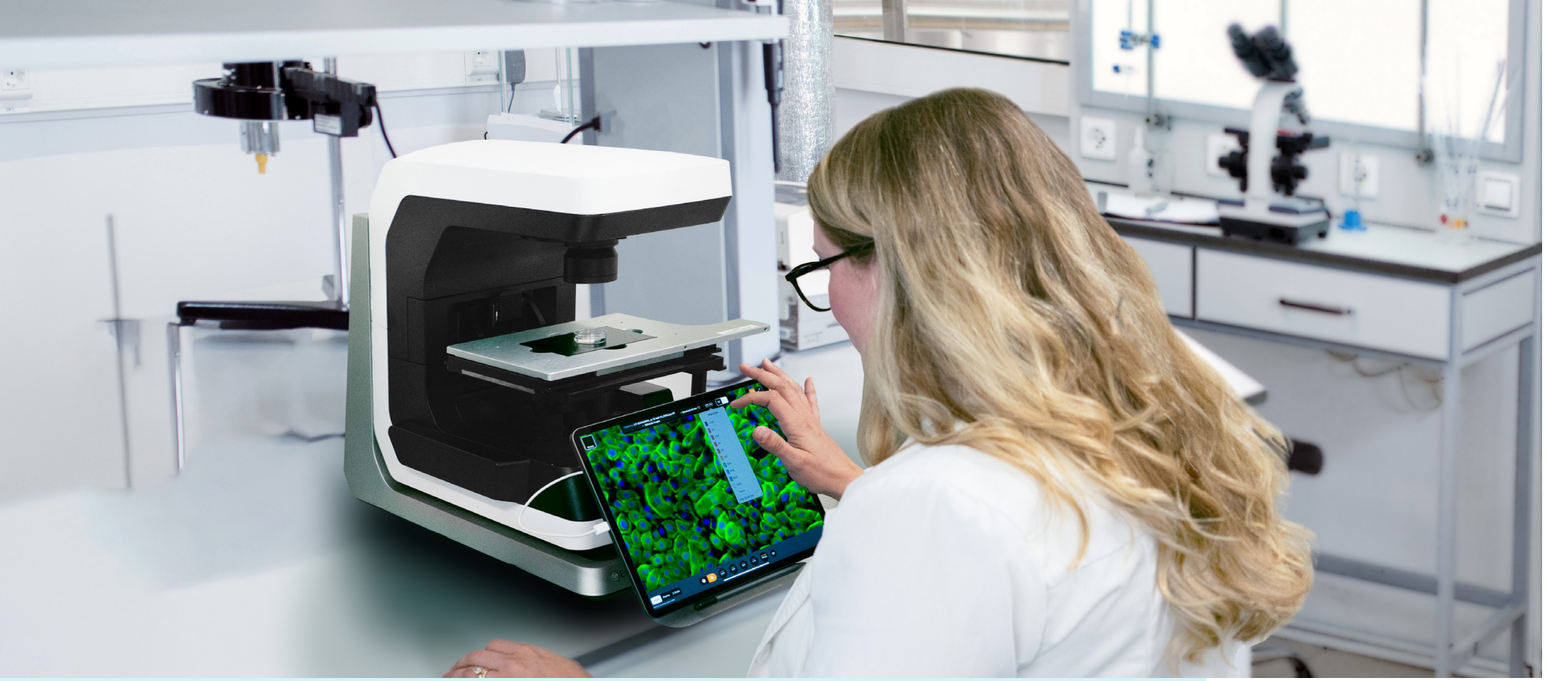
SPOTLIGHT PAPER

MatTek X ECHO
Modern Microscopy for Brilliant Imaging

MATTEK

A BICO COMPANY



Introduction

Glass bottom plates and dishes are designed for improved imaging and clarity to take your imaging studies to the next level. The German borosilicate glass coverslips are designed to provide maximal light transmission and cut down on signal-to-noise ratios compared to plastics and polymers. The design of the glass bottom plates with an inlaid glass coverslip allows for decreased reagent consumption. Unlike plastic dishes and plates, glass bottom products are optimized to be used beyond 40x magnification and are utilized heavily in live cell imaging, immunohistochemistry, complex microscopy techniques, and microinjection studies. Glass bottom dishes can also be used as a replacement for coverslip methods, providing high quality fixed images on standard and confocal microscopes.

Methods

Normal Human Bronchial Epithelial Cells (NHBE-CRY, MatTek), Normal Human Epidermal Keratinocytes (NHEK-CRY-AD, MatTek), and Normal Human Dermal Fibroblasts (NHDF-CRY-AD, MatTek) were seeded following standard MatTek procedures in 35mm Glass bottom dishes (P35G-1.5-14-C, MatTek). Once cells reached >70% confluence, cells were fixed and permeabilized then stained with specific markers as outlined below in Table 1 following standard immunocytochemistry (ICC) protocols. Following staining, cells were imaged on both a confocal (Olympus) and Revolve microscope (Discover ECHO).

Table 1. Cell types and associated markers stained in ICC

NHBE	NHEK	NHDF
Cytokeratin 14	Cytokeratin 14	Vimentin
Phalloidin	Phalloidin	Phalloidin
DAPI	DAPI	DAPI

Results

Images captured on confocal and the Revolve ECHO microscope demonstrate the high image quality of glass bottom dishes (Figure 1 and 2). Images have high resolution on both microscopes and can be successfully imaged at magnifications up to 100x (Figure 1).

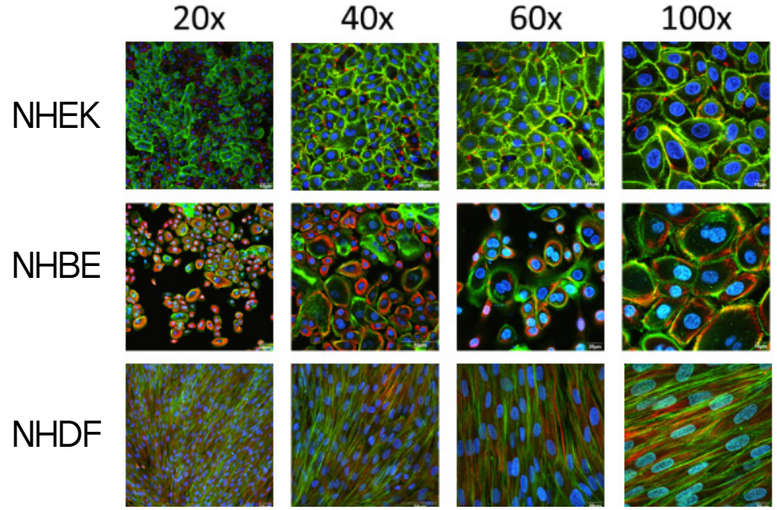


Figure 1. NHEK, NHBE, and NHDF cells imaged at 20x, 40x, 60x, and 100x on the Olympus fv100 confocal microscope. Blue, dapi; green, phalloidin; red, cytokeratin 19 (NHBE, NHEK) or vimentin (NHDF).

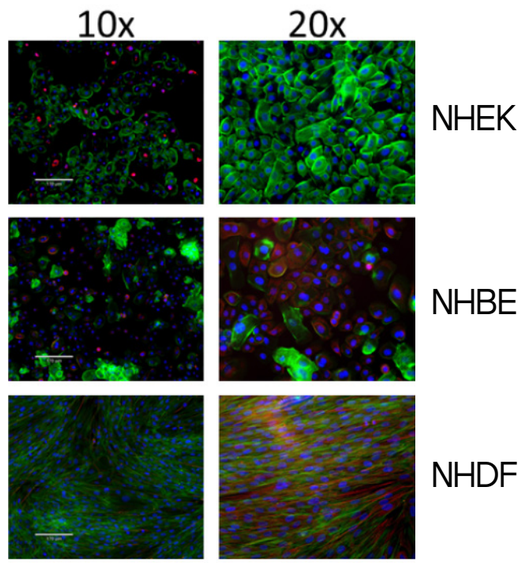


Figure 2. NHEK, NHBE, and NHDF cell imaged at 10x and 20x on the Revolve ECHO microscope. Blue, dapi; green, phalloidin; red, cytokeratin 19 (NHBE, NHEK) or vimentin (NHDF).

Discussion

This data demonstrates the utility of using glass bottom dishes for fixed imaging studies. While many researchers use the products for live cell imaging, these results demonstrate the utility of glass bottom for fixed cell imaging as well. Unlike plastic dishes, the glass bottom dishes can be used beyond 40x magnification without loss of clarity, providing researchers with publication worthy images without additional coverslips and slides.