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Melanoma | Data Sheet

Features

- Human malignant melanoma (A375), NHEK and NHDF-Based Model
- 3D, Highly Differentiated
- Human Skin-Like Structure Epidermis & Dermis
- Gradual melanoma progression from Radial Growth Phase (RGP), to Vertical Growth Phase (VGP) and Metastatic Melanoma (MM)
- *In Vivo*-Like Lipid Profile
- Completely Serum-Free Media System
- Highly Reproducible
- Easily-Handled Cell Culture Inserts
- Quantifiable, Objective Endpoints
- Ideal for Study of New Melanoma Treatment, Melanoma-Keratinocyte-Fibroblast Signaling, and Integrin Signaling
- Cost-Effective Alternative to Clinical Testing

The Melanoma Model

To enable a better understanding of the molecular and cellular mechanisms involved in the progression of cutaneous melanoma (CM) Mattek has developed a full thickness melanoma skin model (MLNM-FT-A375). The MLNM-FT-A375 model consists of human malignant melanoma cells (A375), normal, human-derived epidermal keratinocytes (NHEK) and normal, human-derived dermal fibroblasts (NHDF) which have been cultured to form a multilayered, highly differentiated epidermis with melanoma cells at various stages of CM malignancy. At different stages of the culture, the tissue exhibits radial growth phase (RGP), vertical growth phase (VGP) or metastatic melanoma phenotype. The cells are cultured on cell culture inserts using serum free medium, and attain levels of differentiation on the cutting edge of *in vitro* skin technology has been utilized with a number of target and anti-melanoma drugs.

Structurally, the MLNM-FT-A375 model closely parallels the progression of melanoma *in vivo*, thus providing a valuable tool to study, understand, and develop preventative and therapeutic treatments for one of the most serious cutaneous malignancies. The MLNM-FT-A375 model exhibits *in vivo*-like morphological and growth characteristics which are uniform and highly reproducible. Epidermis of this full thickness skin model consists of organized basal, spinous, granular, and cornified epidermal layers analogous to those found *in vivo*. The dermal compartment is composed of a collagen matrix containing viable normal human dermal fibroblasts (NHDF).

The protocols for using the MLNM-FT-A375 System are clear and straightforward. MLNM-FT-A375 System has been utilized with a number of target and anti-melanoma drugs.

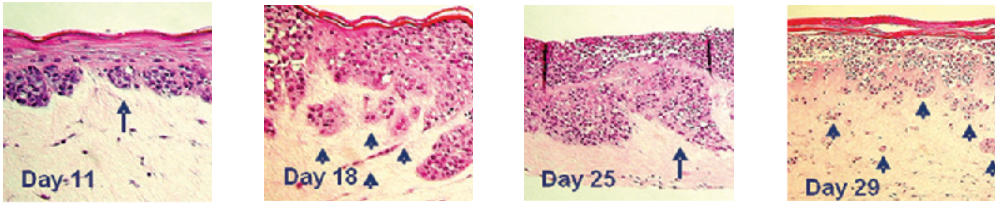

Figure 1. Human Metastatic Melanoma Cells (A375) in Full Thickness Melanoma Skin Model. A375 cells develop RGP melanoma nodes at dermal/epidermal junction (Day 11). With extended culture time, melanoma nodes adopt a VGP morphology (Day 18) and subsequently isolated clusters of cells invade the dermis (metastatic invasion) (Day 29). Long arrows indicate melanoma cell clusters at the epidermal-dermal junction. Short arrows show separated melanoma cell clusters infiltrating the dermis.

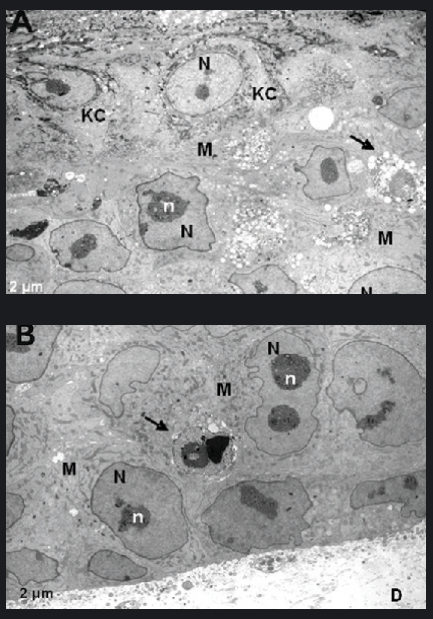

Figure 2. Ultrastructural analysis of Melanoma FT Skin Model. Transmission electron micrograph (TEM) of the full thickness skin melanoma model (MLNM-FT-A375). A. Area of interaction of melanoma cells (M) and keratinocytes (KC). B. Area of interaction of melanoma cells and the underlying dermal substrate (D). N, nucleus, n, nucleoli. Arrow indicates apoptotic melanoma cells.

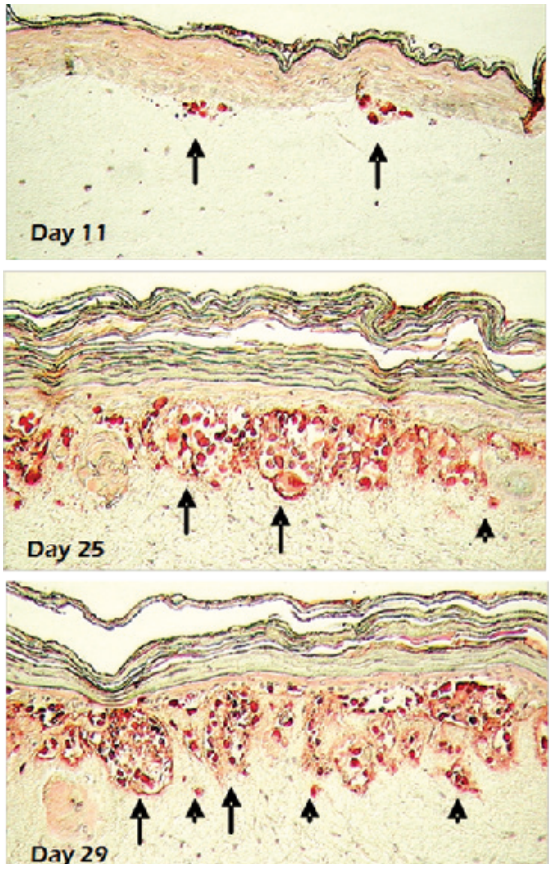

Figure 3. Full thickness Skin Melanoma Model (MLNM-FT) containing metastatic SK-Mel-29 cells. S-100 antibody staining. Initially small nests of melanoma cells form at the dermal/epidermal junction (Day 11). Later VGP tumors develop (Day 25), and subsequently metastasis into the dermis is observed (Day 29). Long arrows indicate some of the melanoma cell clusters at the epidermal-dermal junction. Short arrows show individual melanoma cells infiltrating the dermis.

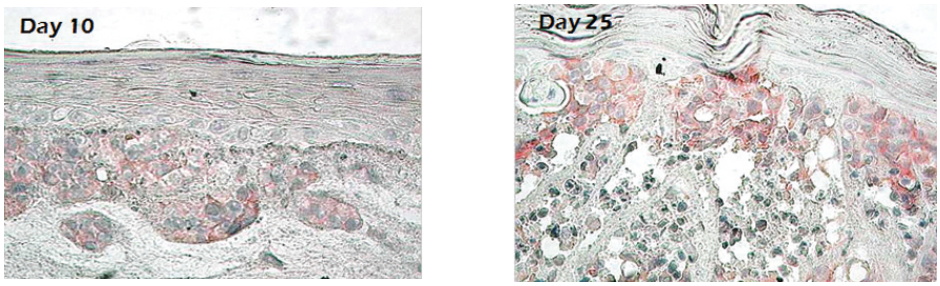

Figure 4. Expression of N-Cadherin Adhesion Molecule in MLNM-FT-A375 Full Thickness Melanoma Skin Model. N-Cadherin antibody staining, 40X. Note increased level of N-Cadherin expression with time in culture.

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