

APPLICATIONS OF RECONSTRUCTED 3 - D *IN VITRO* TISSUE MODELS IN TOXICOLOGY.

P.J.Hayden; J.Kubilus; S.Ayehunie; Y.Kaluzhny; J.E.Sheasgreen; M.Klausner. MatTek Corp., Ashland, MA.

Abstract Number: 319

Presentation Time: Monday, Mar. 6, 2:10 PM - 2:45 PM

Location: Rm 7B

Techniques for in vitro reconstruction of 3-D epithelia from isolated human cells have become more refined and widely utilized in recent years. These epithelial models are cultured on microporous membranes at an air-liquid interface to produce highly differentiated 3-D cultures that possess many of the physical and biochemical properties of in vivo epithelia. The in vivo-like characteristics and barrier properties allow application and evaluation of candidate therapeutic compounds as well as finished formulations in a more realistic manner compared to cultures submerged in media. Examples of models successfully produced from normal (nontransformed) human epithelial cells include dermal, ocular, airway, gingival, buccal and vaginal epithelia. Second generation models provide additional levels of complexity by incorporating multiple cells types including fibroblasts, melanocytes and/or dendritic cells. The ultimate utility of in vitro epithelial culture models for widespread use in industrial toxicology applications and regulatory purposes depends upon their validation with respect to interlaboratory transferability, long-term reproducibility, and the extent to which in vitro results can be extrapolated to in vivo human results. The status of validation efforts for ocular irritation, dermal corrosion, phototoxicity and irritation, airway irritation and vaginal irritation will be presented.