



## **A Plasmacytoid Dendritic Cell-Based Assay System to Predict Allergenicity Potential of Chemicals**

Seyoum Ayeahunie, Maureen Snell, and Mitchell Klausner; MatTek Corporation, 200 Homer Avenue, Ashland, MA (U.S.A.)

### **ABSTRACT:**

Development of a dendritic-cell based in vitro predictive test method for skin sensitization is of great importance. We investigated whether phenotypic and functional changes to subset of DC, plasmacytoid dendritic cells (pDC), could be used to identify allergens. To this end, normal human DC were generated from CD34+ progenitor cells and were cryopreserved. DC were then thawed and the pDC fraction (CD123+/CD11c-) was harvested using FACS sorting. The pDC were cultured and pulsed with chemical allergens (n=13) or irritants (n=7). Results showed that exposure of pDC (n=2-5 donors) to allergens induced an increased ( $\geq 1.5$  fold) expression of CD86 for 12 of 13 allergens tested. However, 7 of 7 non-allergens show no increase in CD86 expression. The test method was found to have a sensitivity of 91-93% and specificity of 93-100%. In conclusion, CD86 expression on pDC appears to be a sensitive and specific predictor of allergenicity of chemicals.

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