ImmunoTools IT-Box-139 Award 2013

Adewonuola Alase

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Identifying potential therapeutic targets in scarring and non-scarring inflammatory skin diseases

Scarring resulting from inflammatory skin diseases is source of concern to immunologists and dermatologists. However, the exact cause of scarring resulting from these diseases is unknown. Some of the skin diseases that heal with scarring include: discoid chronic cutaneous lupus erythematosus (dCLE), Lichen planus planopilaris (LPP) and alopecia areata (AA). It has been suggested that the scarring observed following these diseases could be a result of the destruction of stem cells in the bulge region of the hair follicle resulting in impaired proliferation of cells in the epidermal compartment of the skin (mainly keratinocytes); hence, impaired wound healing. The main focus of my research is cutanous lupus erythematosus which has shown high expression of interferons, interferon stimulated genes and infiltrating T cells in the skin compartment. My work involves isolation and culture of human keratinocytes, dermal fibroblasts, T cells, dendritic cells and monocytes from healthy individuals and from patients with non-scarring and scarring skin diseases. Therefore, using flow cytometry and immunoflurescence, I would be interested in knowing the characteristics of the cells that are mainly resident or dominant in the scarring area in scarring skin diseases as compared to the non-scarring or healthy skin. This also includes checking for markers of apoptosis and cell proliferation.

My research also involves checking for the production of pro-apoptotic and anti-proliferative molecules by these cells. I will identify molecules that are essential for cell survival, tissue repair, inhibition of apoptosis and hyperproliferation. Of particular interest is IL-22 and its family members, and interferons (with special interest in type III interferons). ImmunoTools antibodies will be very useful in the following ways: There is need to identify what stage of differentiation the cultured keratinocytes are by checking for markers such as cytokeratins and integrins (CD29 will be particularly of interest). In checking for apoptosis, annexin V or BrDU will be used. I would be interested in identifying the subtypes of T-lymphocytes infiltrating the skin compartment during inflammation (CD3, CD4, CD8). Antibodies to the cell surface markers of the cells mentioned above would be very useful. Due to the high amount of IFNα observed in lupus, I would like to stain for pDC marker so as not to confuse it with other types of dendritic cells (CD11c).

Getting this award from ImmunoTools would make my research work proceed smoothly because of access to most of the antibodies I would need for my project. Flow cytometry and immunofluorescence are two key methods that I would be using

throughout the period of my PhD; and this award would be of immense benefit in these areas.

ImmunoTools *IT-Box-139.3* for **Adewonuola Alase** includes 100 antibodies

FITC - conjugated anti-human CD1a, CD2, CD3, CD4, CD5, CD6, CD7, CD8, CD9, CD11a, CD11b, CD14, CD15, CD16, CD18, CD19, CD21, CD25, CD29, CD36, CD41a, CD43, CD45, CD45RA, CD46, CD52, CD53, CD54, CD58, CD62p, CD63, CD69, CD71, CD80, CD86, CD95, CD235a, HLA-ABC, HLA-DR, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE - conjugated anti-human CD2, CD3, CD4, CD8, CD11b, CD14, CD15, CD18, CD19, CD20, CD21, CD22, CD27, CD33, CD34, CD37, CD38, CD40, CD42b, CD45, CD45RB, CD50, CD72, CD95, CD105, CD147, CD177, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE/Dy647 -tandem conjugated anti-human CD45

APC -conjugated anti-human CD3, CD4, CD7, CD8, CD10, CD11c, CD14, CD16, CD19, CD27, CD37, CD40, CD44, CD56, CD59, CD61, CD62L, CD62P, CD69, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V DETAILS

plus CD49d FITC