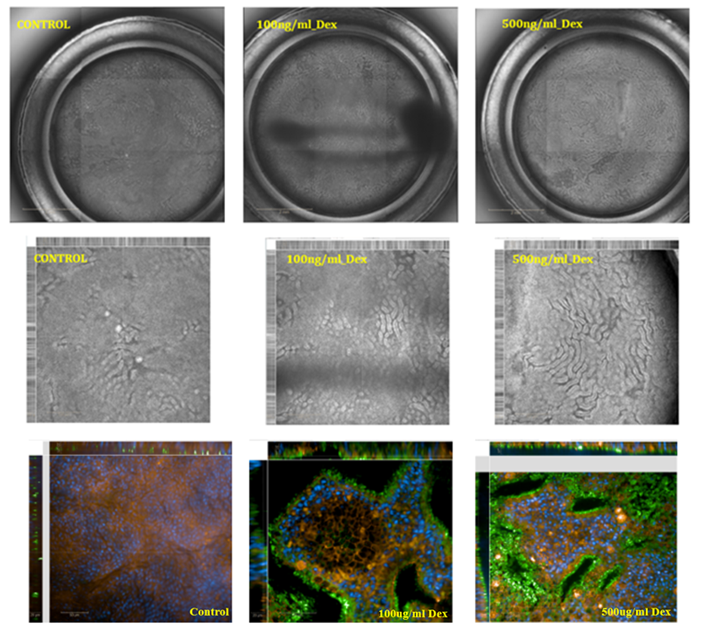
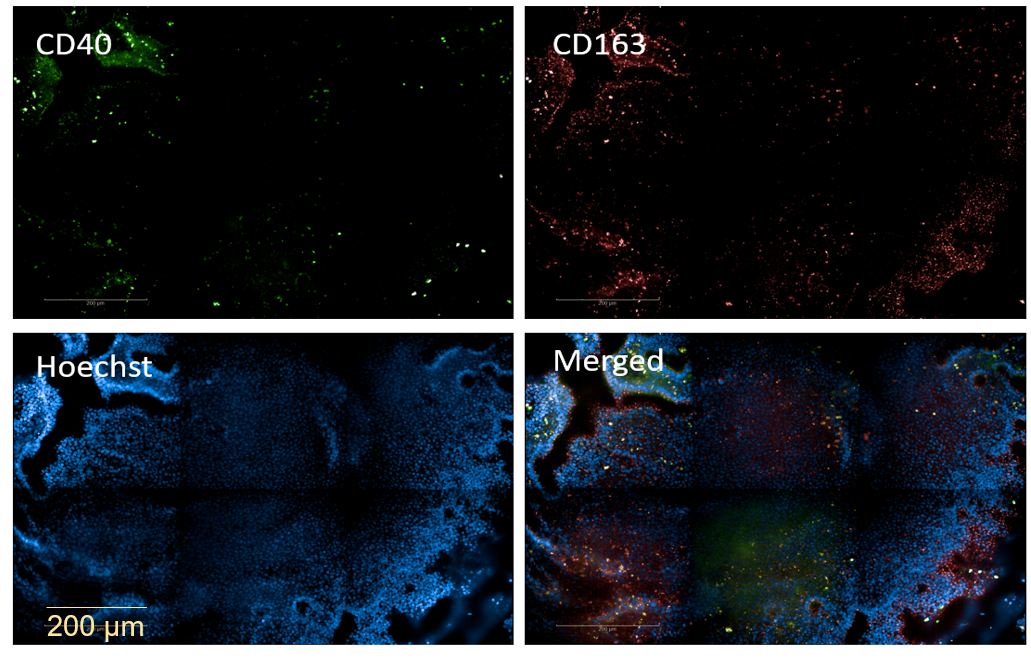
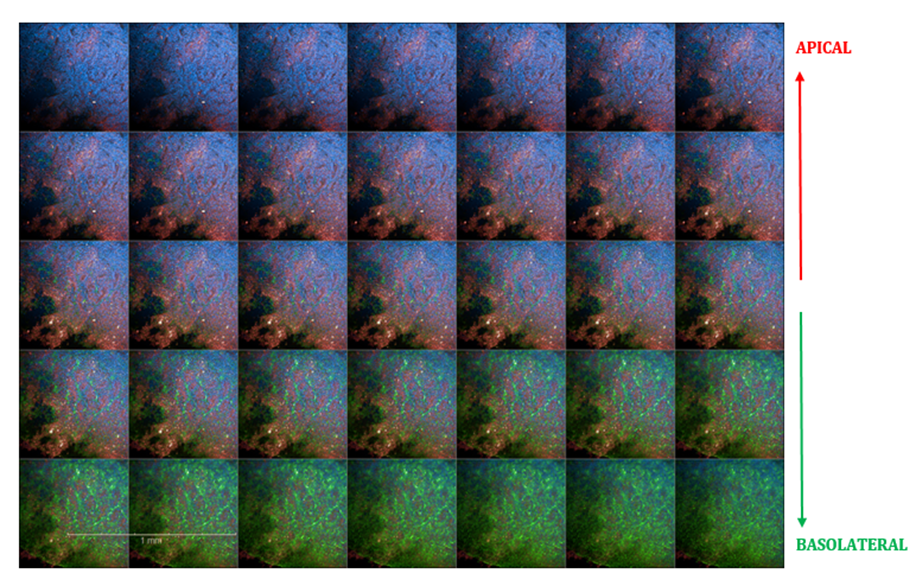
**Supplementary Figures and Figure Legends**



**Supplementary Figure S1.** Clear phenotypic differences between dexamethasone-treated vs untreated NHBE in the unstained 3D Lung model, Brightfield imaging using Operetta CLS High Content Analysis system (Perkin Elmer), 42 days in ALI X5air objective, N. A 0.16 and X20W Objective N.A. 1.0



**Supplementary Figure S2**. CD40 and CD163 expression overview image. Dexamethasone (100ug/ml) treatedmacrophages expressed both CD40 (Alexa Fluor® 488, green) and CD163 (Alexa Fluor® 647, red) surface markers within 3D lung model indicating the establishment of an immunosuppressed micro-environment, NHBE Passage 2, 100,000 cells per TW, 82 days in ALI. Scale bar\_ 200um



**Supplementary Figure S3**. Sequential optical sections (Z-stacks) of M1 macrophage Chemotaxis within the 3D lung model depicting serially thin 0.5 – 1.5um optical sections of the co - culture membrane with CD40+ untreated macrophages in the basolateral side while CD163+ macrophages largely remain apical. Z - stacks were collected during experimentation in order to reflect the depth of the membrane as well as reveal any internal variations in auto fluorescence emission.