

Fig.S3 Characterization of cell communities in normal and EMPD human skin. a Feature plots of pan markers identified eleven cell communities present in normal and EMPD human skin, including cycling epithelial cells (*MKI67*), epithelial cells (*KRT14*), suprabasal epithelial cells (*KRT10*), granular epithelial cells - I (*IVL*), granular epithelial cells - II (*LOR*), Paget cells (Aggregated Paget cell score, the marker genes include *KRT8*, *AR*, *PDPN*, *GATA3*, *MYD88*, *MUC1*, *KRT7*, *VIM*, *MMP9*, and *PIP*), melanocytic cells (*MLANA*), immune cells (*PTPRC*), endothelial cells (*PECAM1*), lymphatic endothelial cells (*LYVE1*), and fibroblasts (*PDGFRA*). Black color represents highest integrated count level. b Feature plots of pan epithelial markers identified main epithelial cell communities present in normal and EMPD human skin epidermis, including basal (*KRT14*), suprabasal (*KRT10*), and granular (*IVL | LOR*) cells. c Feature plots showing co-expression of *KRT14* / *KRT10*; *KRT10* / *IVL*; and *KRT10* / *LOR*. Epithelial cells expressing the former gene marker are labeled red; cells expressing the latter gene marker are labeled green, and cells expressing both are labeled yellow.