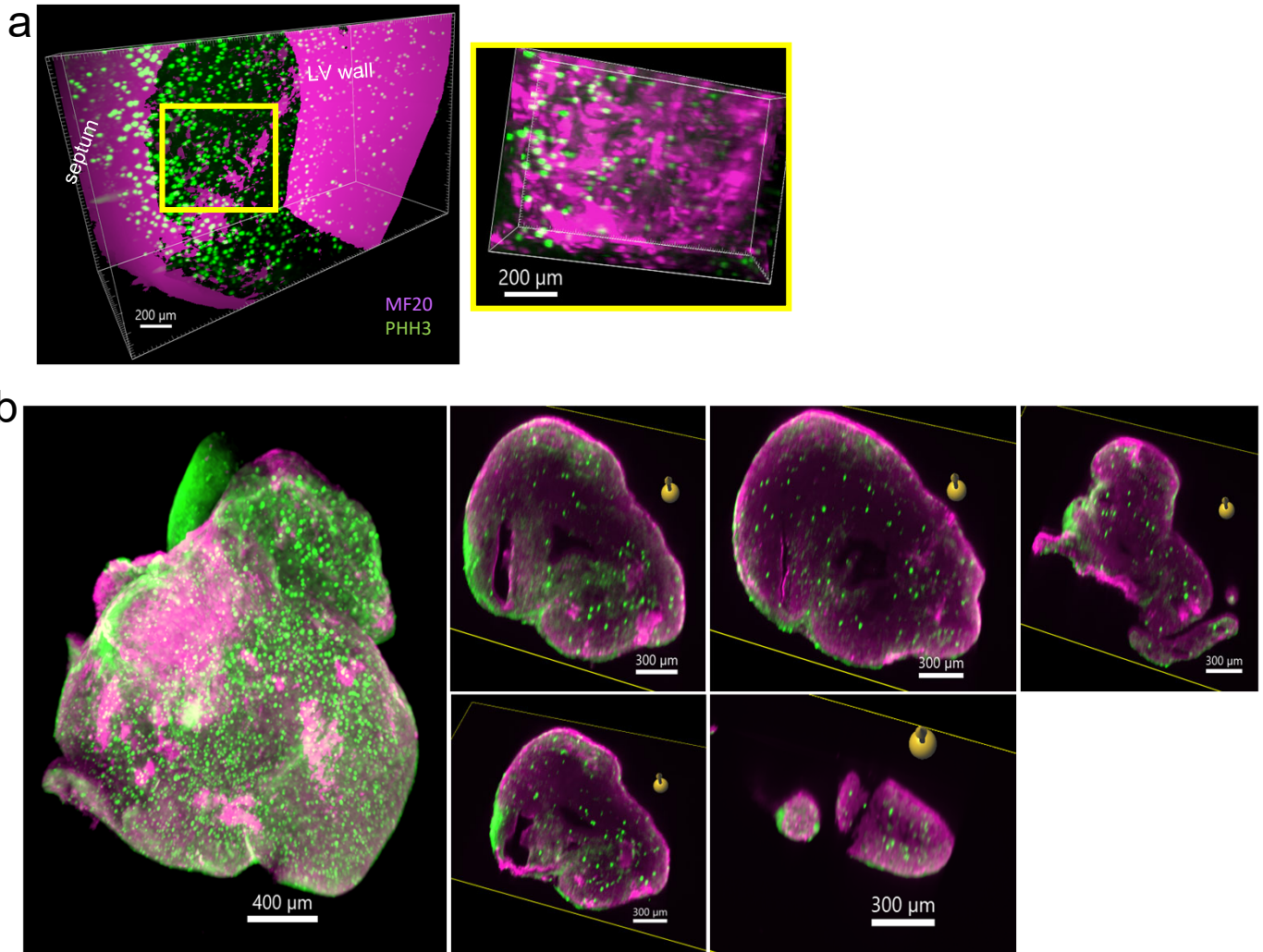
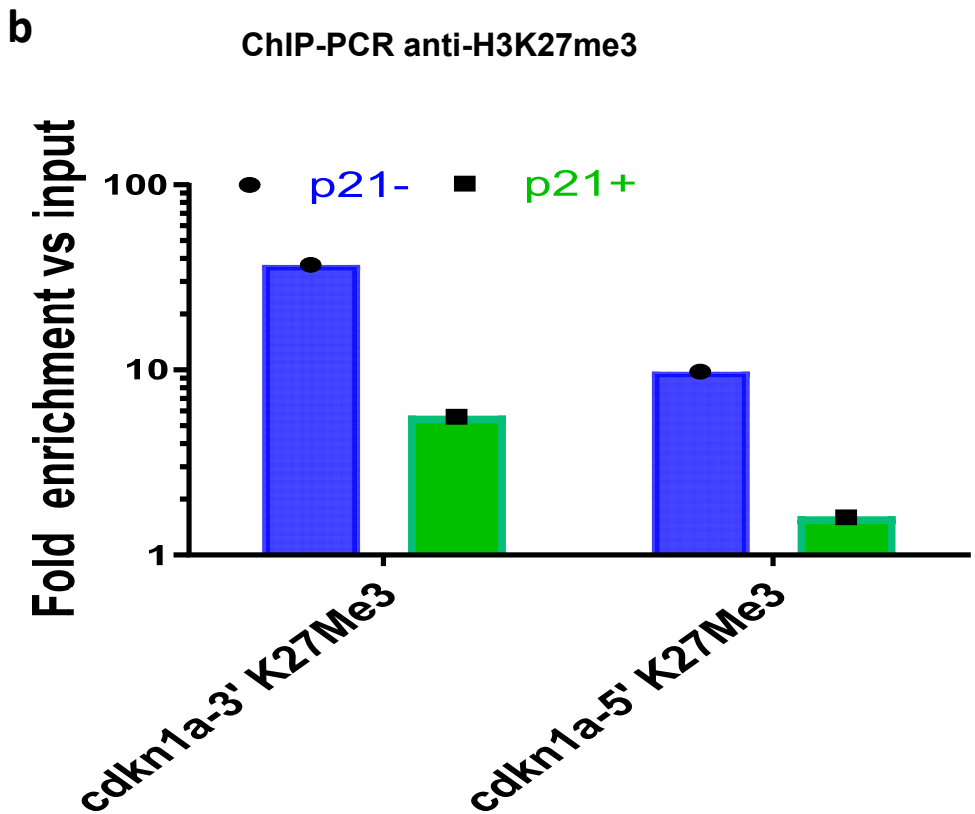
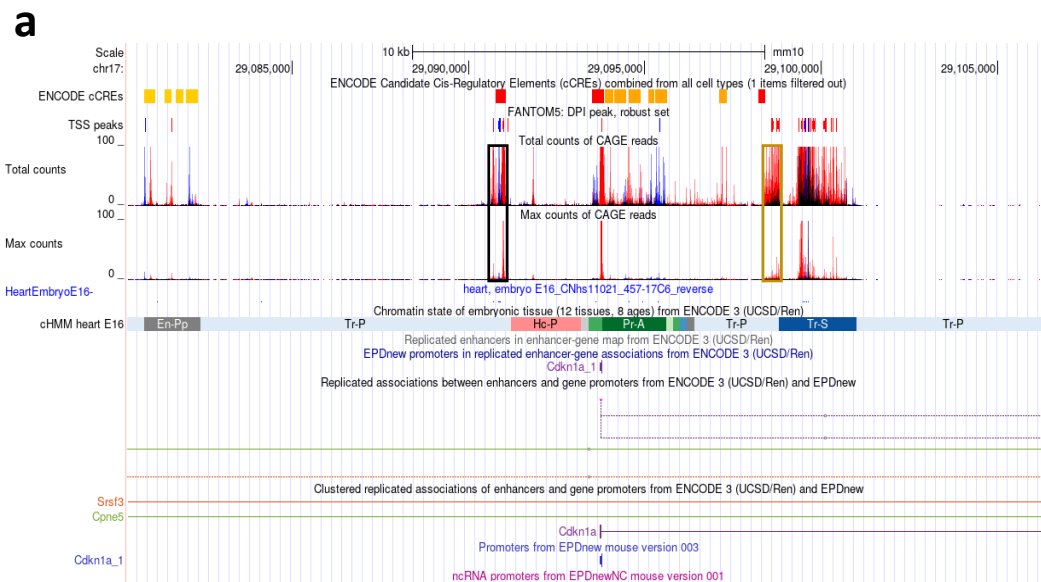


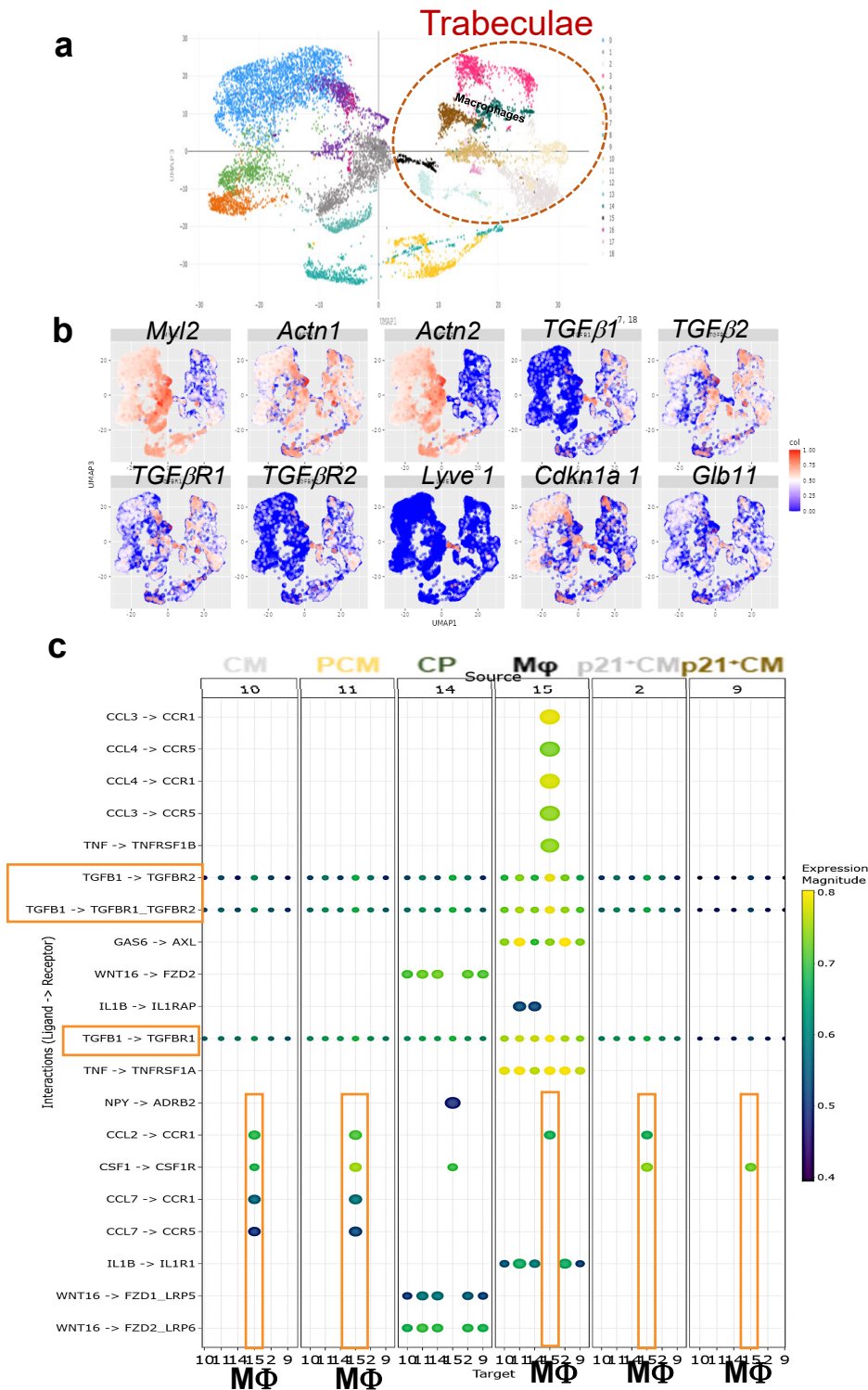
**Extended data Figure 1:** Light sheet microscopy and 3D visualization of E16.5 hearts stained with anti-PHH3 and -MF20 antibodies; right inset : magnification of ta trabeculae region (a) and clipping planes from base to apex using IMARIS software (b)



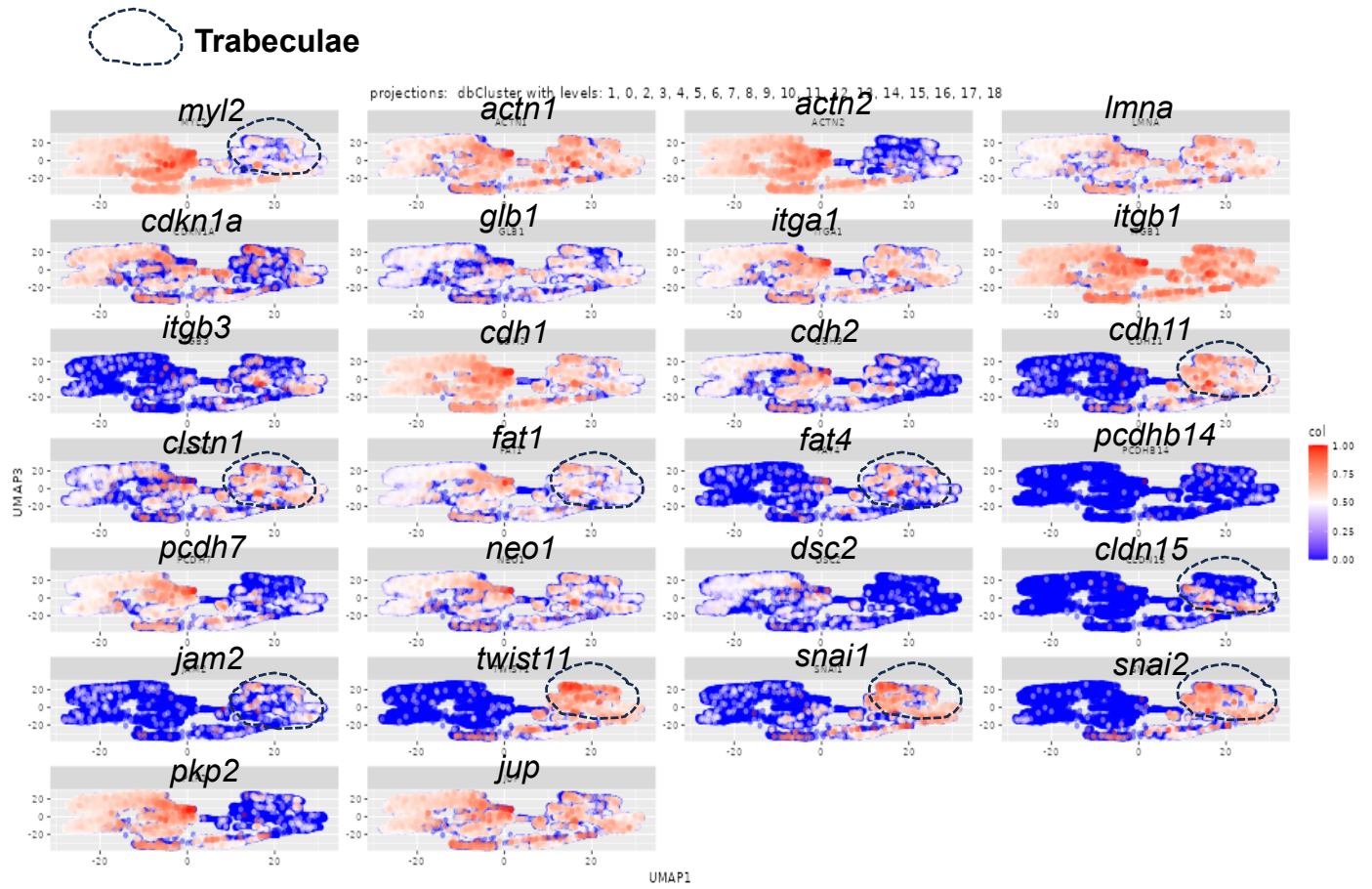
**Extended data Figure 2: (a)** E16.5 embryonic heart ChIP-seq anti-H3K27me3 (locus *cdkn1a* Encode project) . Regions 5' and 3' from *cdkn1a* gene with a frame were used to design qPCR primers in ChIP –PCR experiments **(b)** ChIP-PCR anti-H3K27me3 of p21<sup>+</sup> and p21<sup>-</sup> sorted cells from E16.5 mouse embryonic hearts



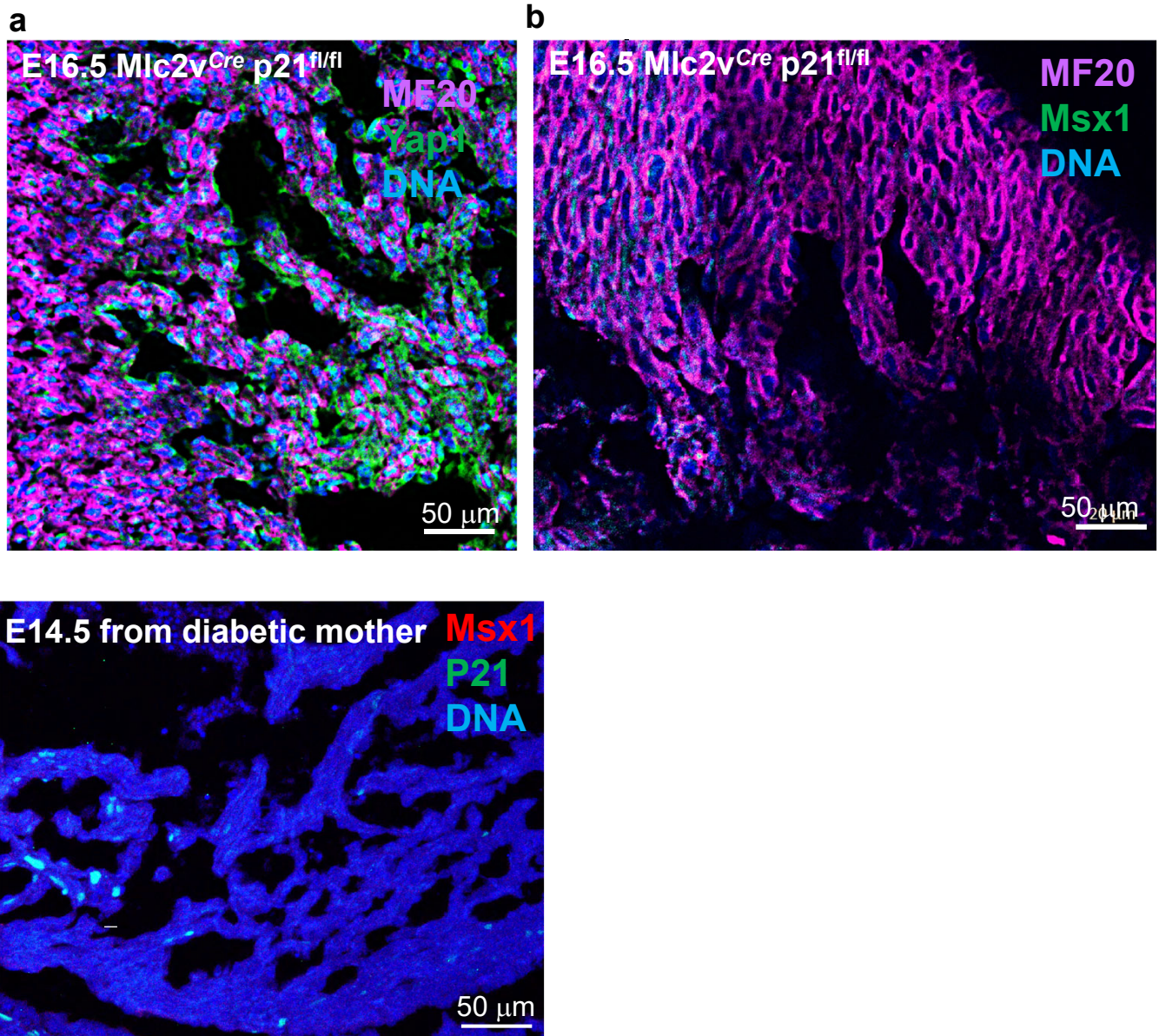
**Extended data Figure 3 (a)** UMAP of E13.5 and E16.5 mouse embryonic heart cells from RNA-seq data sets **(b)** panel plots of genes of the TGF $\beta$  related pathway **(c)** Cell-cell communication analysis Using iCellNet algorithm . TGF $\beta$  pathway is highlighted as well as macrophage-cardiomyocytes interactions through Csf1/Csf1R and ccl2/cc1 ligand/receptors binding. CM, cardiomyocytes; PCM, Proliferative cardiomyocytes; CP, Cardiac Progenitors; M $\Phi$  , macrophages



**Extended data Figure 4:** Panel plot of genes reminiscent of the cell delamination process from E13.5 and E16.5 single cell-RNA seq datasets



**Extended data Figure 5** . E16.5 *Mlc2v<sup>Cre</sup> p21<sup>fl/fl</sup>* embryonic heart immunostained with anti-*Msx1*, -MF20 (a) -*Yap1* and -MF20 antibodies (b) . (c) E14.5 embryonic heart (embryo from diabetic mother) heart immunostained with anti-*Msx1*, antibody





**Extended data Figure 7:** E10.5 embryonic heart immunostained with anti-CD68 and –MF20 antibodies

