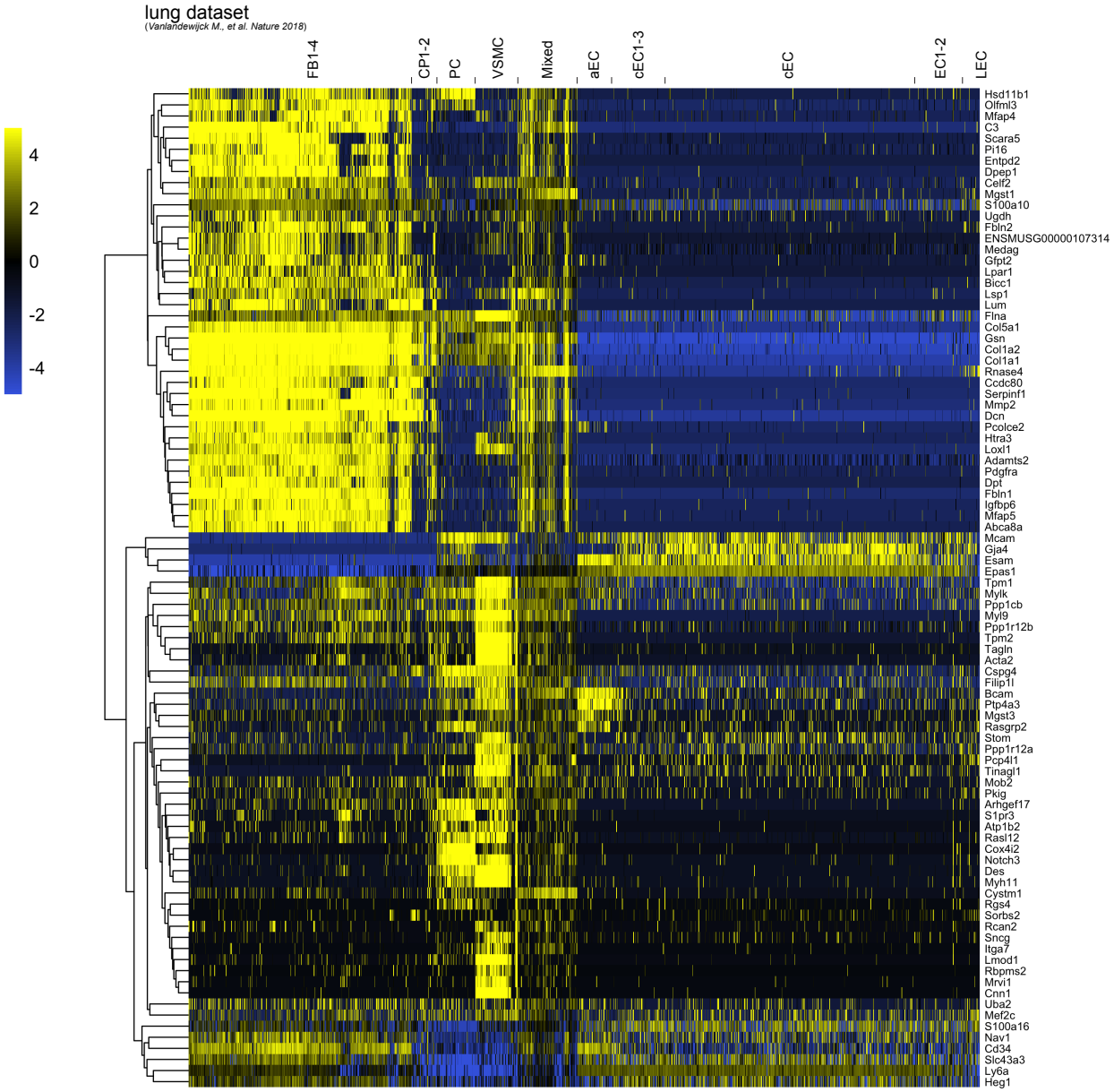Supplementary data 13