

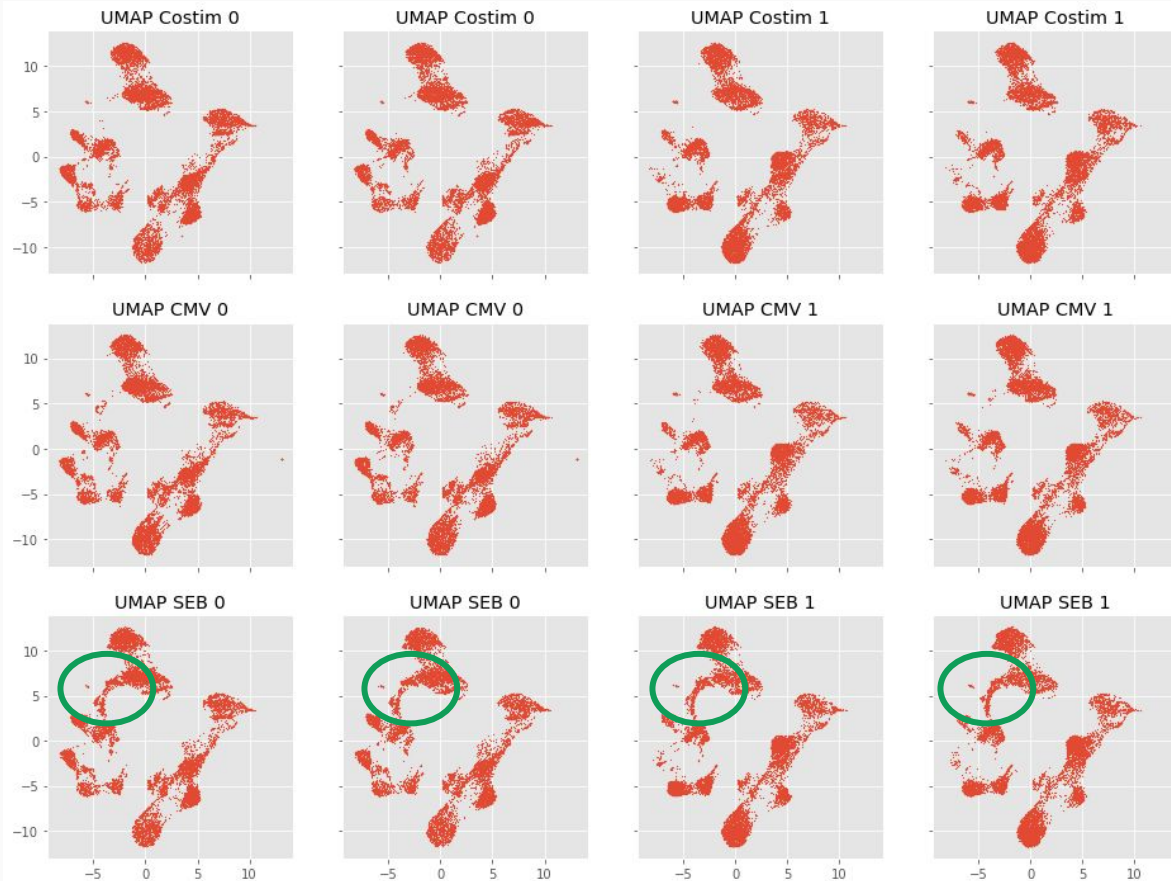
# Progress Report

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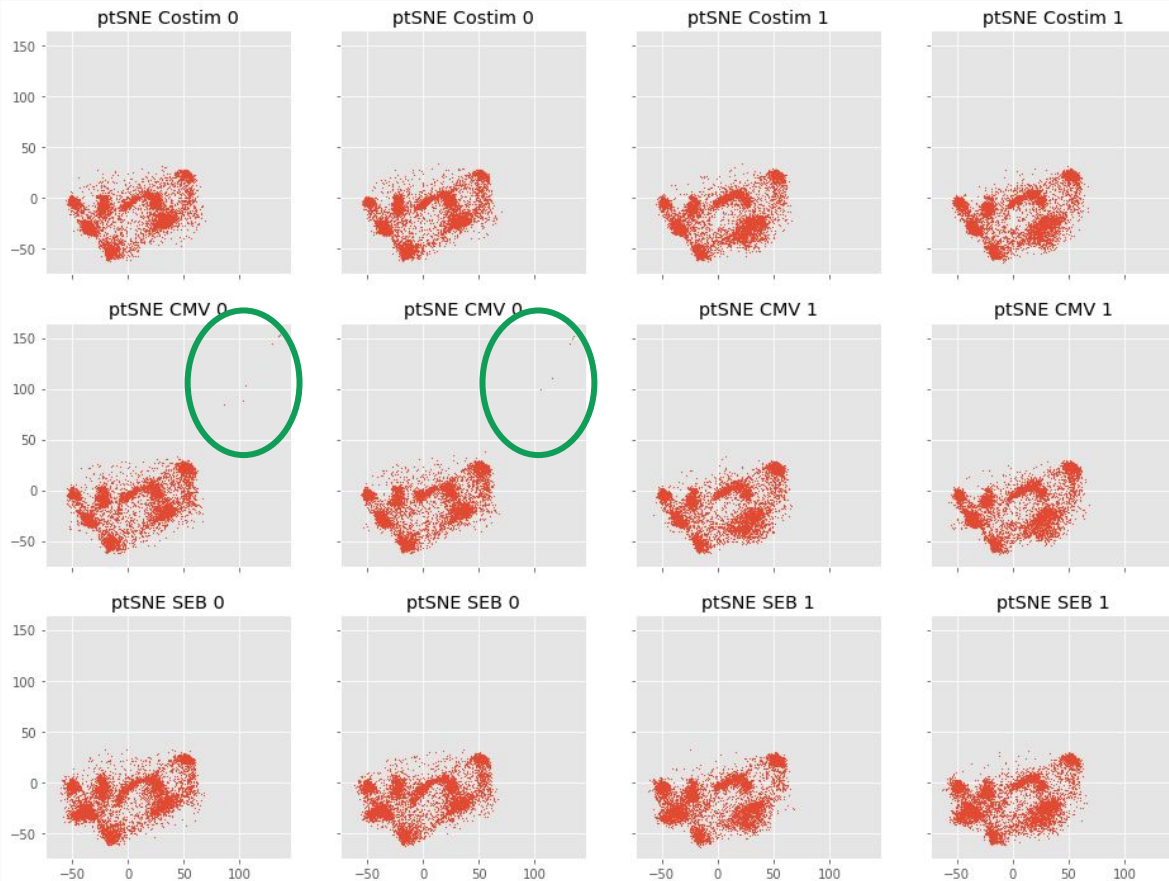
# Contents

In this progress report, I compared UMAP and parametric tSNE. Below I performed three plots. **The first one** contains the UMAP plotting. **The second plot** is the result of parametric after training for only 100 epochs on three samples, one from Costim, one from CMV and one from SEB. Since there are some points outside the regions (I haven't checked those points yet), **in the third plot**, I zoomed in the main region of the points and compare samples from three groups (Costim, CMV, and SEB)

# UMAP of pooled samples

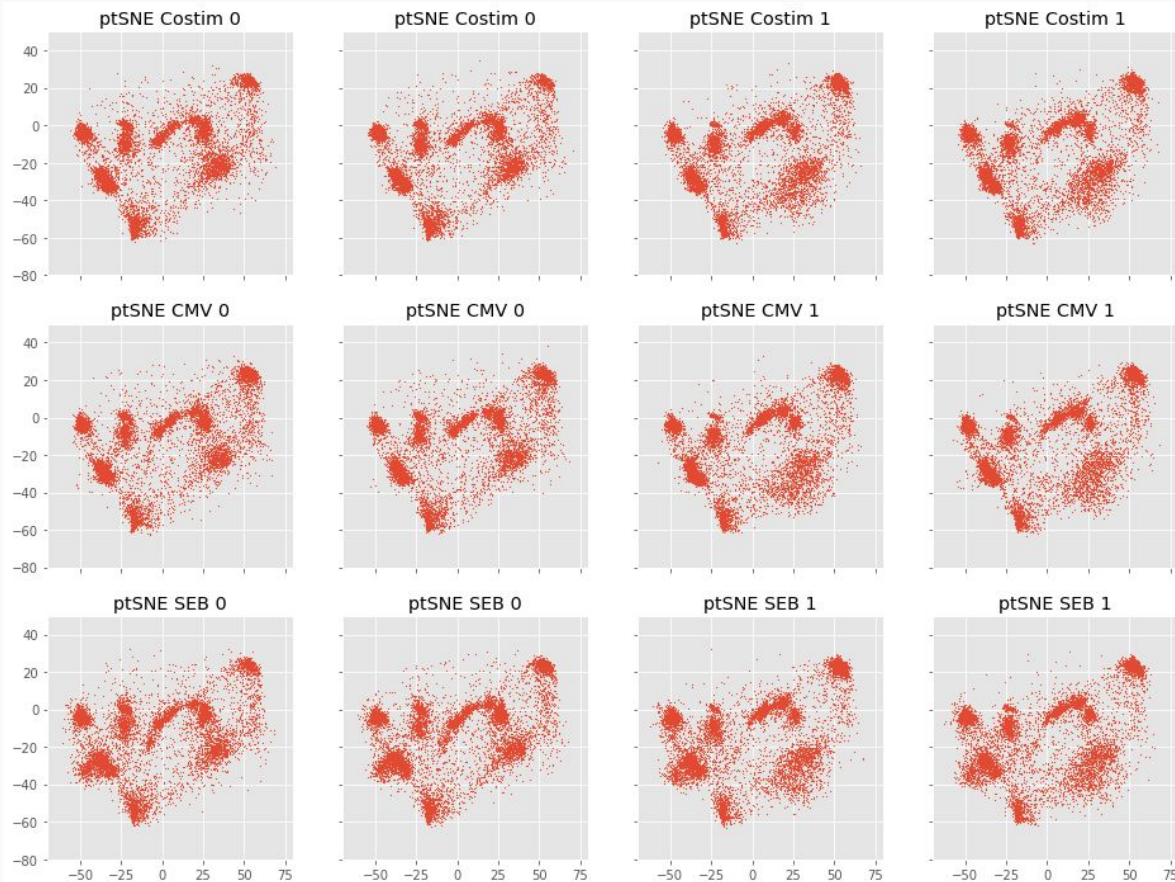


# Parametric tSNE (ptSNE)



The results of ptSNE. There are some points that are away from others in several figures, causing the range of x coordinate and y coordinate to be wider.

# Parametric tSNE (ptSNE; zoom-in)



It took about an 1~2 hrs to train the ptSNE model with 100 epochs. I did not observe clear pattern that could distinguish SEB from the other two groups (Costim and CMV)

Note that the perplexity of the tSNE I used is 30. I might try to lower the number of points defined as neighborhood (perplexity) to see if the process will take less time.

# Next step

The plots in this report are just a quick look for the results of ptSNE. Next, I would perform train-test-validation of the model and also try to train the ptSNE with larger epochs if the differences in patterns between “SEB” and “Costim & CMV” will be more obvious.