06_table2_all_figures

October 10, 2024

[ ]:
```
import pandas as pd
from process_helper import plot_volcano
from IPython.display import display, Markdown
```

1 Load data and print table content

[ ]:
```
df_g = pd.read_excel(
    '../data/Genome-wide-screens/data/science.abj4008_table_s2.xlsx',
).groupby(['Screen_Version', 'CRISPRa_or_i', 'CD4_or_CD8', 'Cytokine'])
df_g.size().reset_index().rename(columns={0: 'total_rows'})
```

[ ]:

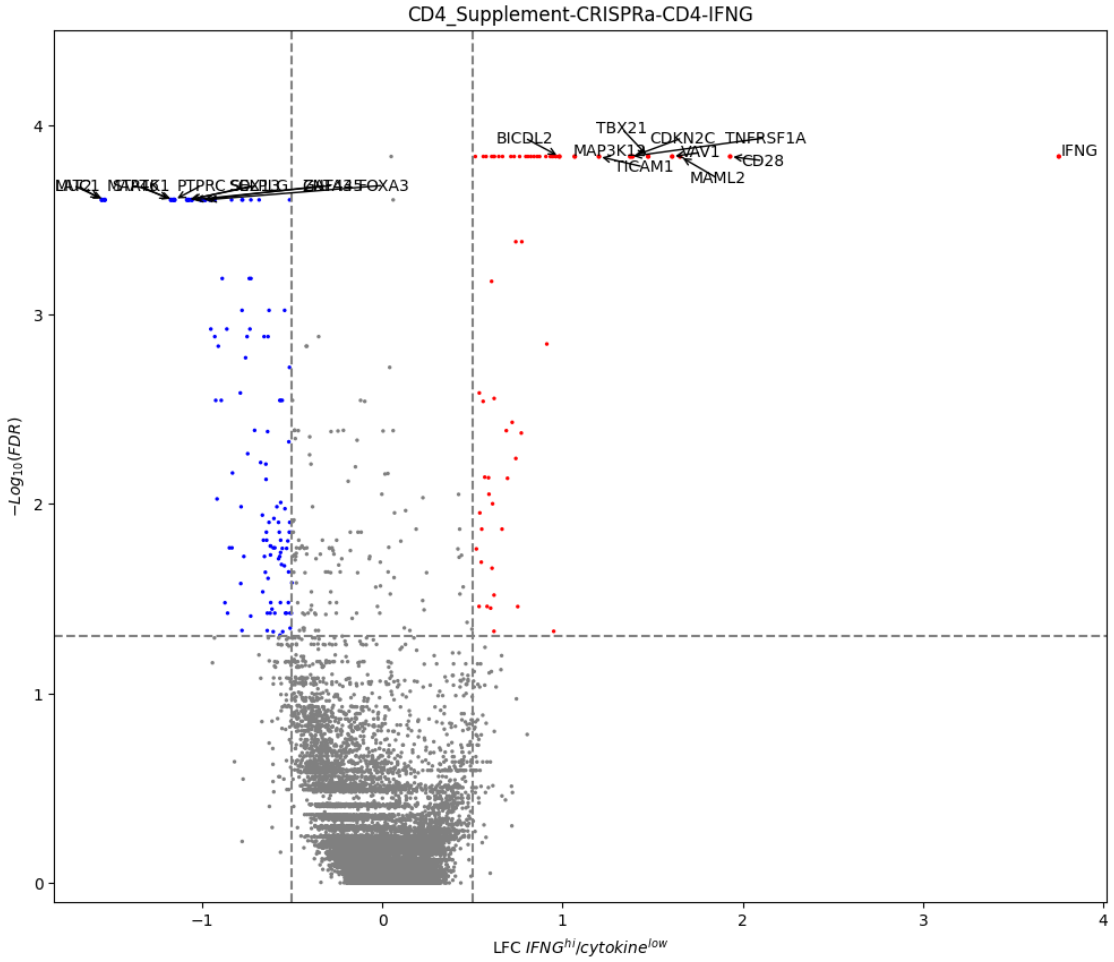
	Screen_Version	CRISPRa_or_i	CD4_or_CD8	Cytokine	total_rows
0	CD4_Supplement	CRISPRa	CD4	IFNG	18930
1	CD4_Supplement	CRISPRa	CD4	IL2	18930
2	CD4_Supplement	CRISPRa	CD4	TNF	18930
3	Primary	CRISPRa	CD4	IL2	18930
4	Primary	CRISPRa	CD8	IFNG	18930
5	Primary	CRISPRi	CD4	IL2	18939
6	Primary	CRISPRi	CD8	IFNG	18939

[ ]:
```
for (study_type, screen, cell_type, cytokine), df_to_plot in df_g:
    display(Markdown('<div style="page-break-after: always; visibility:␣
 ↪hidden"> \\pagebreak </div>'))
    display(Markdown(f'# {cytokine} in {cell_type}+, {screen} (Experiment:␣
 ↪{study_type})'))

    f = plot_volcano(
        df_to_plot,
        x_label='LFC ' + '$'+f'{cytokine}'+'^{hi}/{cytokine}^{low}$',
        y_label='$-Log_{10}(FDR)$',
        plot_title=f'{study_type}-{screen}-{cell_type}-{cytokine}',
        fig_size=(12,10)
    );
    display(f)
    f.clf()
display(Markdown('<div style="page-break-after: always; visibility: hidden">␣
 ↪\\pagebreak </div>'))
```

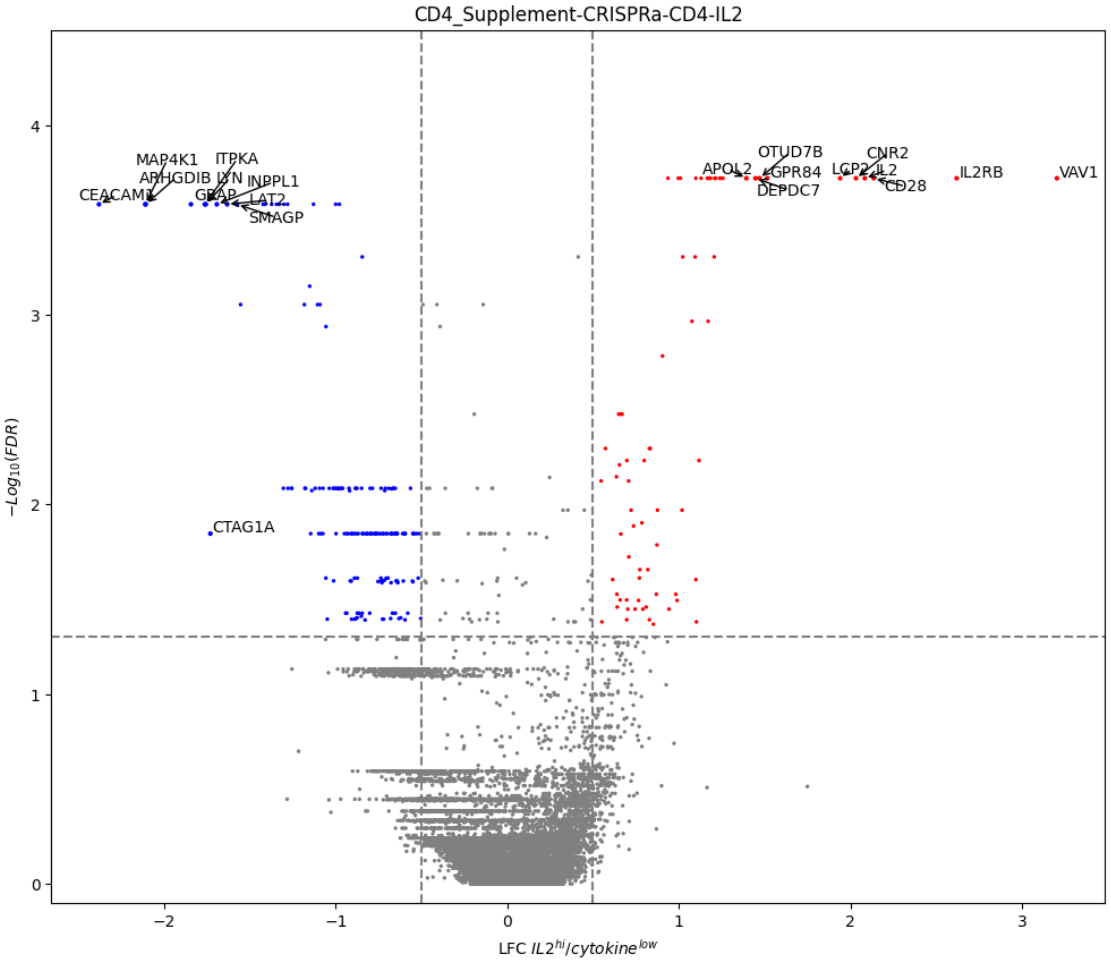
2 IFNG in CD4+, CRISPRa (Experiment: CD4_Supplement)

Upregulated:
['IFNG', 'CD28', 'MAML2', 'VAV1', 'TBX21', 'CDKN2C', 'TNFRSF1A', 'TICAM1', 'MAP3K12', 'BICDL2']
Downregulated:
['MUC1', 'LAT2', 'MAP4K1', 'STAT6', 'PTPRC', 'SELPLG', 'SOX13', 'ZNF445', 'GATA3', 'FOXA3']



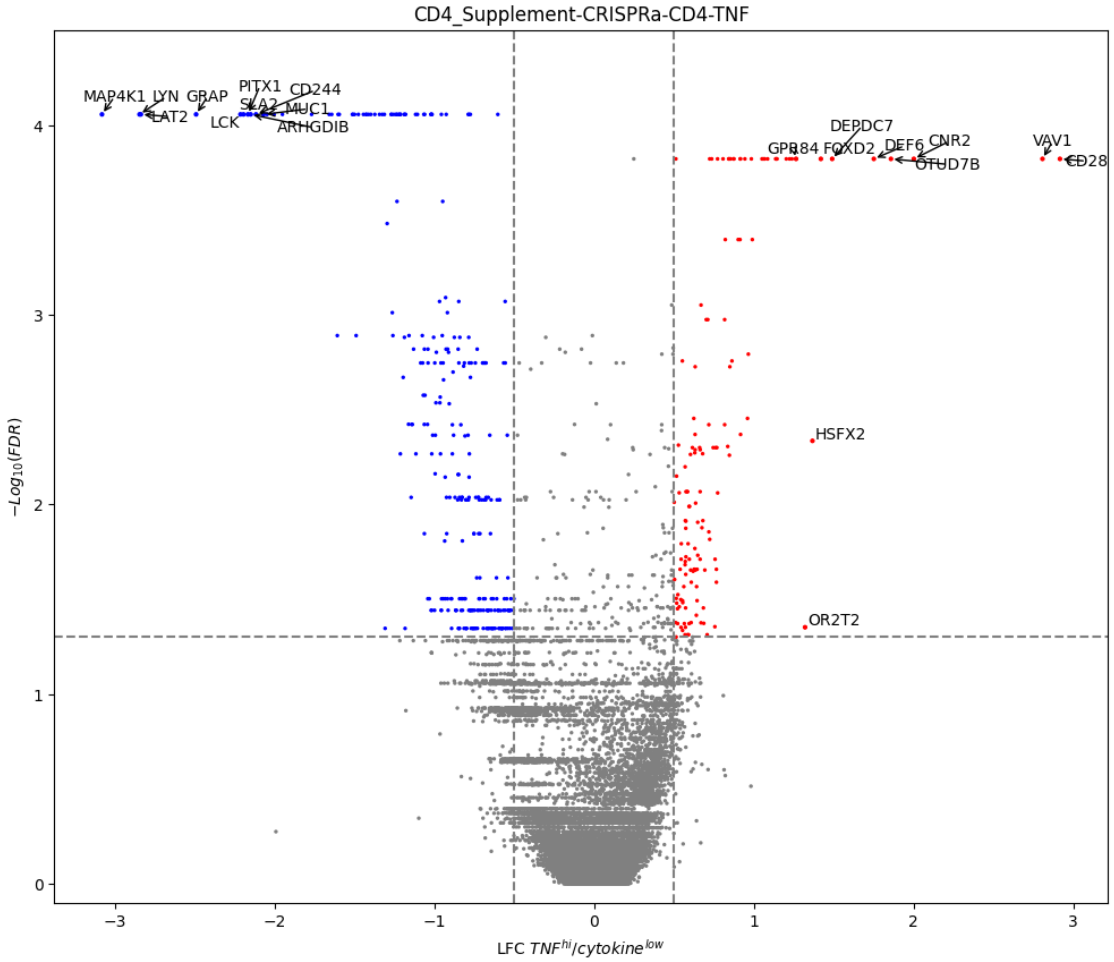
3 IL2 in CD4+, CRISPRa (Experiment: CD4_Supplement)

Upregulated:
['VAV1', 'IL2RB', 'CD28', 'IL2', 'CNR2', 'LCP2', 'GPR84', 'OTUD7B', 'DEPDC7', 'APOL2']
Downregulated:
['CEACAM1', 'MAP4K1', 'ARHGDIB', 'GRAP', 'ITPKA', 'LYN', 'CTAG1A', 'INPPL1', 'LAT2', 'SMAGP']



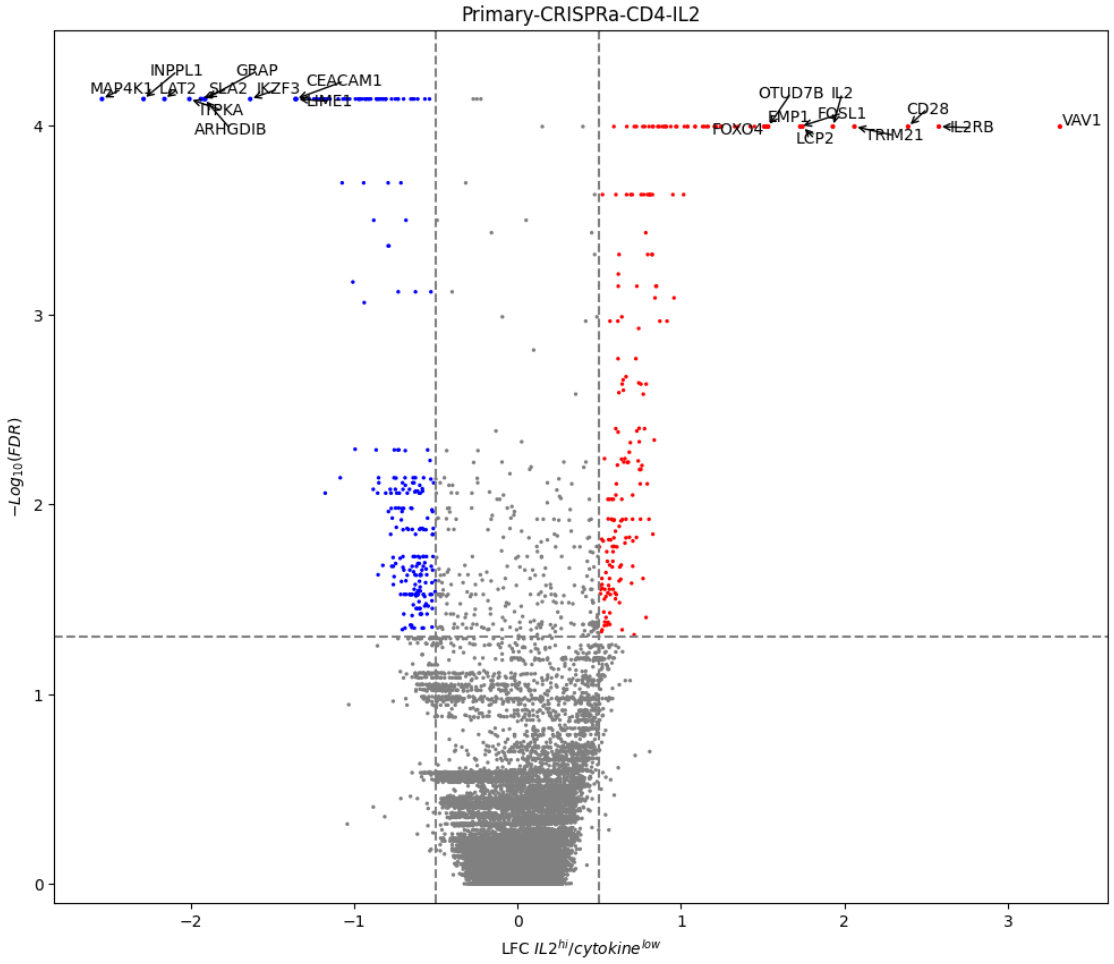
4 TNF in CD4+, CRISPRa (Experiment: CD4_Supplement)

Upregulated:
['CD28', 'VAV1', 'CNR2', 'OTUD7B', 'DEF6', 'DEPDC7', 'FOXD2', 'HSFX2', 'OR2T2', 'GPR84']
Downregulated:
['MAP4K1', 'LYN', 'LAT2', 'GRAP', 'LCK', 'SLA2', 'PITX1', 'ARHGDIB', 'CD244', 'MUC1']



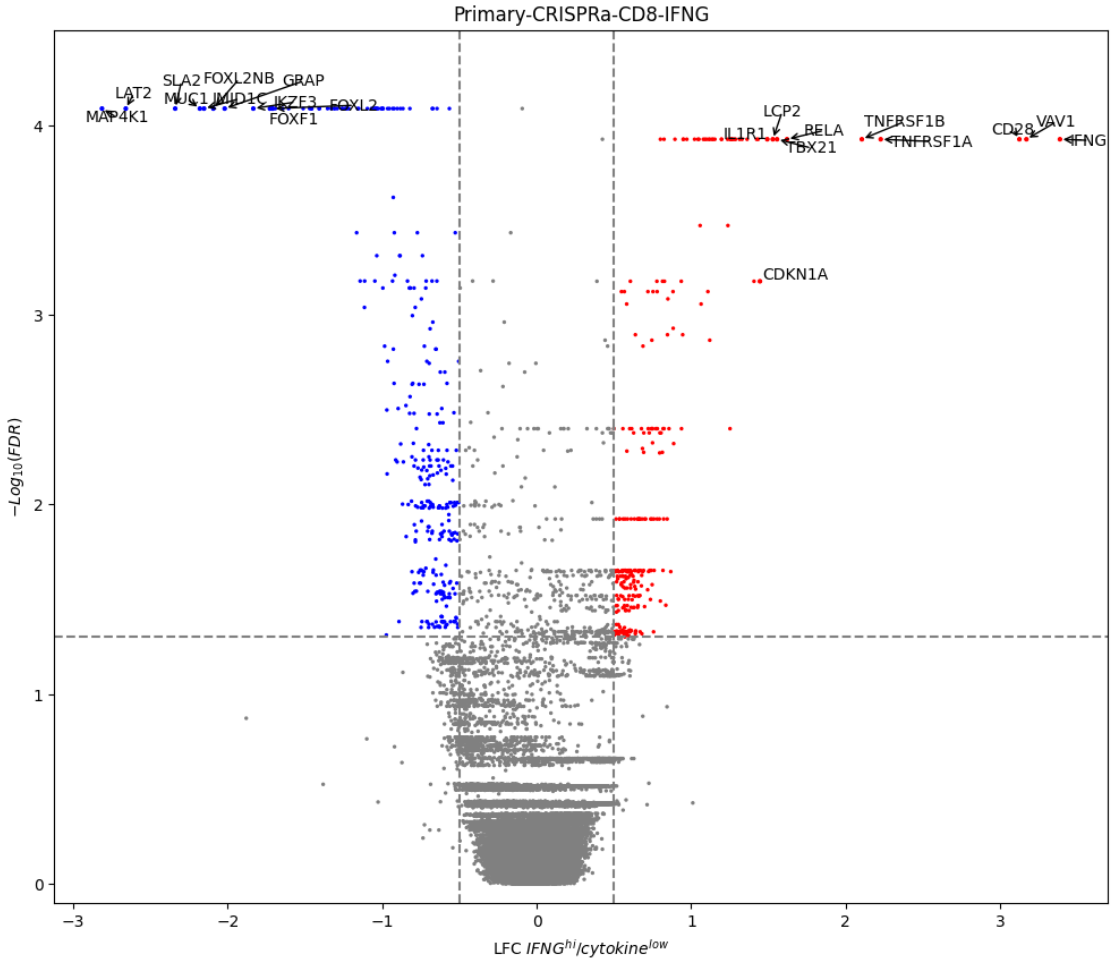
5 IL2 in CD4+, CRISPRa (Experiment: Primary)

Upregulated:
['VAV1', 'IL2RB', 'CD28', 'TRIM21', 'IL2', 'LCP2', 'FOSL1', 'OTUD7B', 'FOXO4', 'EMP1']
Downregulated:
['MAP4K1', 'INPPL1', 'LAT2', 'ITPKA', 'SLA2', 'ARHGDIB', 'GRAP', 'IKZF3', 'CEACAM1', 'LIME1']



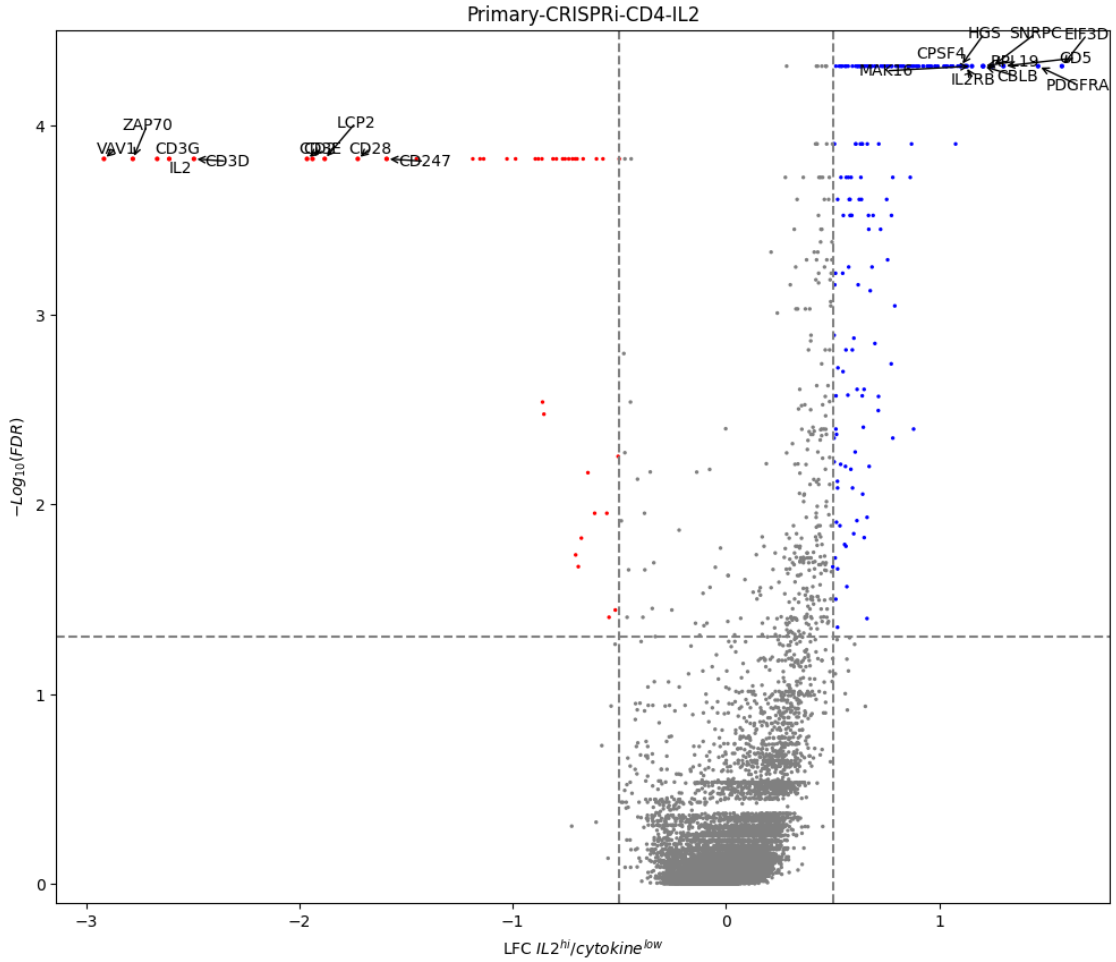
6 IFNG in CD8+, CRISPRa (Experiment: Primary)

```
Upregulated:
['IFNG', 'VAV1', 'CD28', 'TNFRSF1A', 'TNFRSF1B', 'RELA', 'TBX21', 'LCP2',
'IL1R1', 'CDKN1A']
Downregulated:
['MAP4K1', 'LAT2', 'SLA2', 'MUC1', 'JMJD1C', 'FOXL2NB', 'GRAP', 'IKZF3',
'FOXF1', 'FOXL2']
```



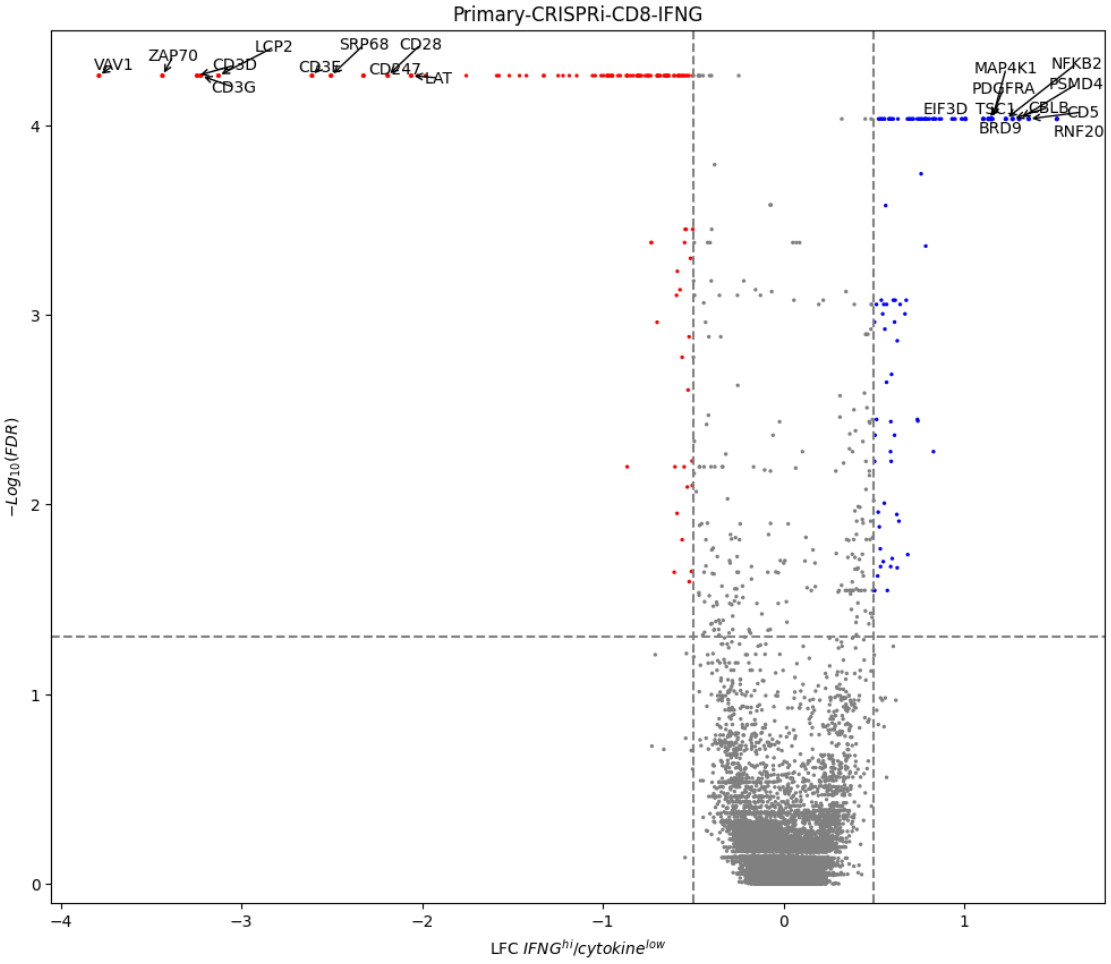
7 IL2 in CD4+, CRISPRi (Experiment: Primary)

Upregulated:
['EIF3D', 'PDGFRA', 'CD5', 'SNRPC', 'RPL19', 'CBLB', 'MAK16', 'CPSF4', 'IL2RB', 'HGS']
Downregulated:
['VAV1', 'ZAP70', 'CD3G', 'IL2', 'CD3D', 'CD3E', 'CD2', 'LCP2', 'CD28', 'CD247']



8 IFNG in CD8+, CRISPRi (Experiment: Primary)

Upregulated:
['RNF20', 'CD5', 'PSMD4', 'CBLB', 'NFKB2', 'MAP4K1', 'PDGFRA', 'TSC1', 'BRD9', 'EIF3D']
Downregulated:
['VAV1', 'ZAP70', 'CD3D', 'CD3G', 'LCP2', 'CD3E', 'SRP68', 'CD247', 'CD28', 'LAT']



```
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
<Figure size 1200x1000 with 0 Axes>
```

[ ]: