Instructions:

* Download and unzip the folder (Naive\_T\_Cell)

Steps to run a single simulation:

1. Open “Recirculation\_model\_Elrefaei” folder
2. Open the function file Driver.m in MATLAB
3. Copy the parameter x on line 3 and paste in the command window
4. Run the function
5. The simulation takes approximately 150s, then you will see the output matrix [simulation\_data] and 3 figures will appear

Steps to generate the clouds (seen in the results section):

1. Open “Recirculation\_model\_Elrefaei” folder
2. Ensure you have the parallel computing toolbox installed
3. Run the file CloudPlot.m in matlab (100 runs take about 37 mins)
4. If parallel computing is not installed, comment out lines 5 and 16, and use “for” instead of parfor (line 7)
5. The file generates 100 runs by default according to n\_runs (line 3)
6. The file outputs the cloud with experimental data plots

Steps to run a single simulation with FTY720 drug:

1. Open “FTY720\_Elrefaei” folder
2. Open the function file Driver.m in MATLAB
3. Copy the parameter FTY on line 2 and paste in the command window
4. Run the function

Steps to run the cloud:

1. Open “FTY720\_Elrefaei” folder
2. Ensure you have the parallel computing toolbox installed
3. Run the file diff\_dose\_sim.m or the file diff\_dose\_plot.m to plot
4. Change the dose from 0.1mg (line 18) or 1mg (line 31) to see the effect of the oral dose on the CD8+ Tcell counts in the blood as a % of control