Installing Collidoscope on Mac OS

Zach Miller and Jim Prell, 16 July 2019

**Because Mac OS does not come with a g++ compiler capable of handling OpenMP (which allows you to parallelize Collidoscope over all the threads on your CPU), you will need to go through a few steps to make this work.**

**1.)** Install xcode command line utilities (developer environment you’ll need to compile Collidoscope)

In the terminal, type:

xcode-select --install

**2.)** Install Homebrew (also needed)

In the terminal, type (should be all one line):

/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)

**3.)** Install gcc with brew (gcc will be the compiler you use to install Collidoscope)

In the terminal, type:

brew install gcc

Alternatively, if brew says you already have gcc,

brew reinstall gcc

**4.)** Install Cmake

In the terminal, type:

brew install cmake

**5.)** Navigate to the below directory to determine the version of gcc you have:

usr/local/Cellar/gcc/

In order to determine the version of gcc, look at the name of the subdirectory in the directory you are in

For example, if the subdirectory is called “9.1.0”, the version of gcc is 9 (gcc-9)



**6.)** Navigate back to the home directory and type in the terminal:

PATH=/usr/local/bin:$PATH

**7.)** Navigate to your Collidoscope directory, and go to the source code subdirectory:

Collidoscope/src/

Use vim or emacs to edit the header file Definitions.h

Locate the below line:

#elif defined(\_\_unix\_\_) || defined (\_\_unix)

Append the following to that line:

|| defined (\_\_APPLE\_\_)

So that the new line looks like this:

#elif defined(\_\_unix\_\_) || defined (\_\_unix) || defined (\_\_APPLE\_\_)



This will tell the compiler that you’re compiling for a Mac operating system.

**8.)** While still in the /src subdirectory, use vim or emacs to edit the file titled “Makefile”

Locate the lines that start with the following:

CXXFLAGS

CXX

Ensure the there are two lines that have CXXFLAGS and edit all three lines to be as follows (In this case, the version of gcc was 9, so the third line contains “g++-9”, make sure that the version of g++ in the third line is the same as the one found in step 5):

CXXFLAGS += $(INCLUDE\_DIRS)

CXXFLAGS += -fopenmp -O3

CXX = g++-9



**9.)** Now that every previous step has been completed, the program should be able to be compiled

In the terminal (still within the /src subdirectory), type:

make clean install

**10.)** Now that you have compiled Collidoscope, it can be tested through the executable ./coll

Type the executable into the terminal, press Enter, and the collisional cross section of ondansetron should be calculated. The computation should yield an average cross section for T = 298.15 to be 110.345