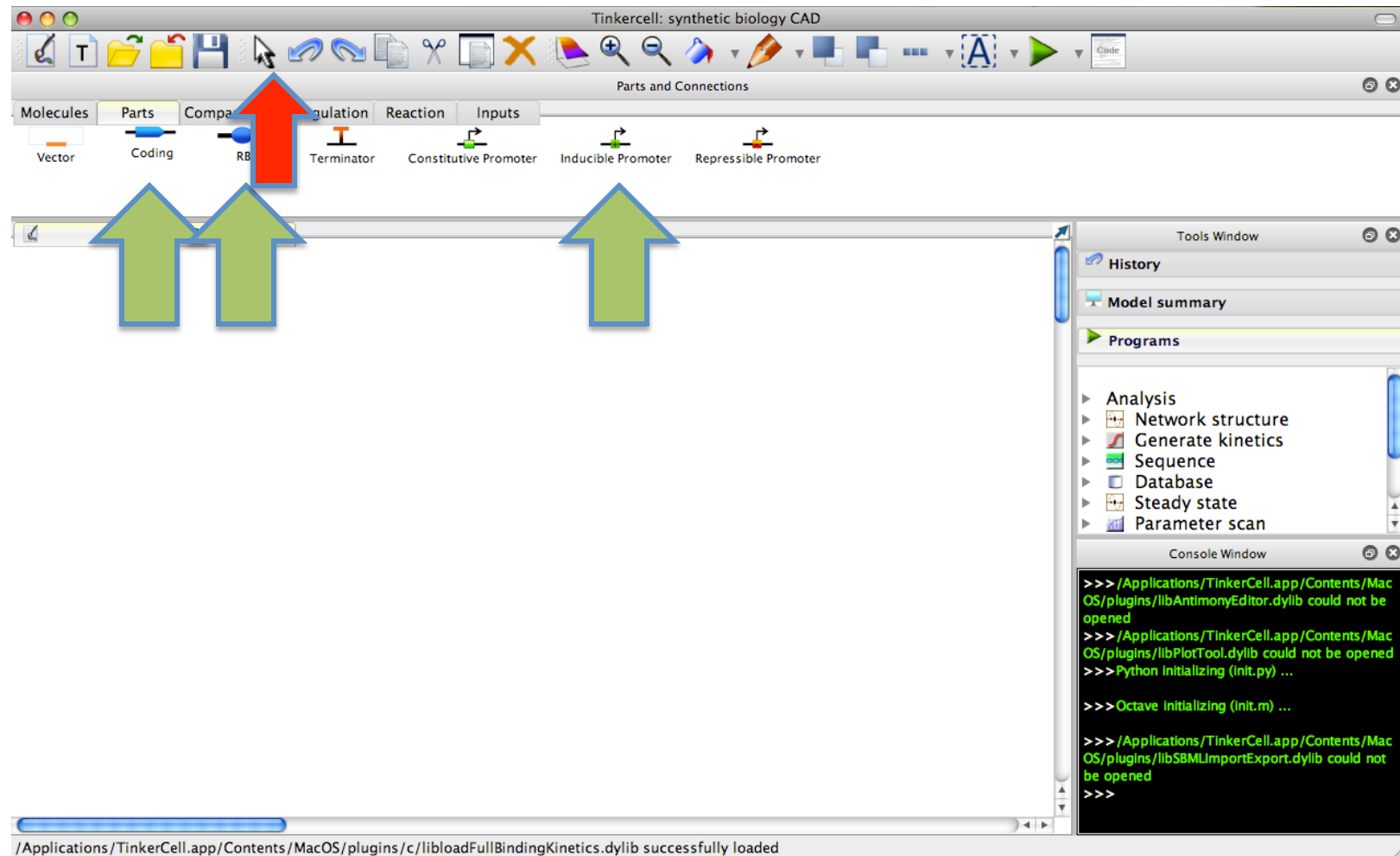




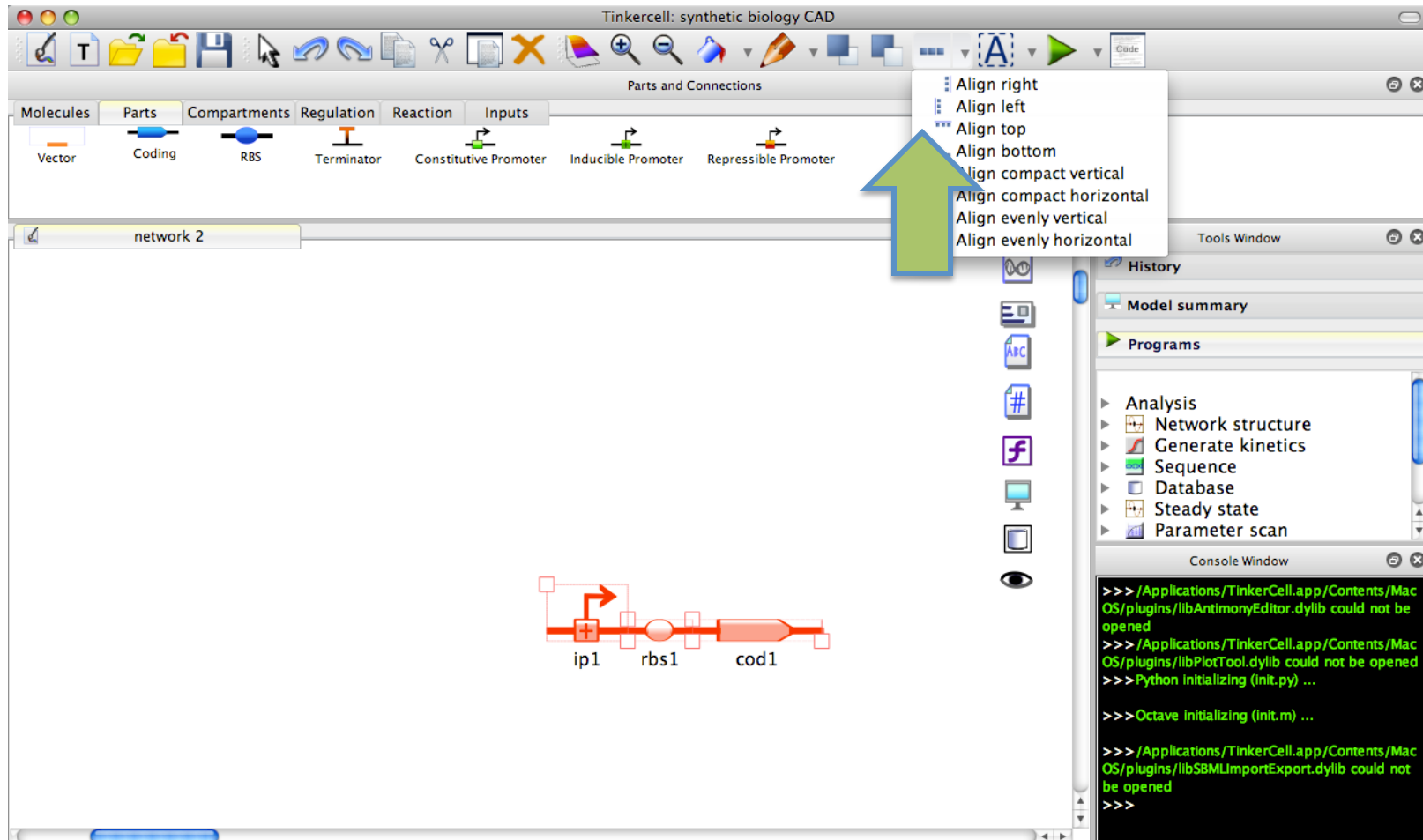
Thanks and appreciation to Deepak Chandra  
from U of W who developed Tinkercell and  
who modified it to teach the light detection  
system from the 2006 Univ. Texas iGEM  
team

# Assemble reporter gene



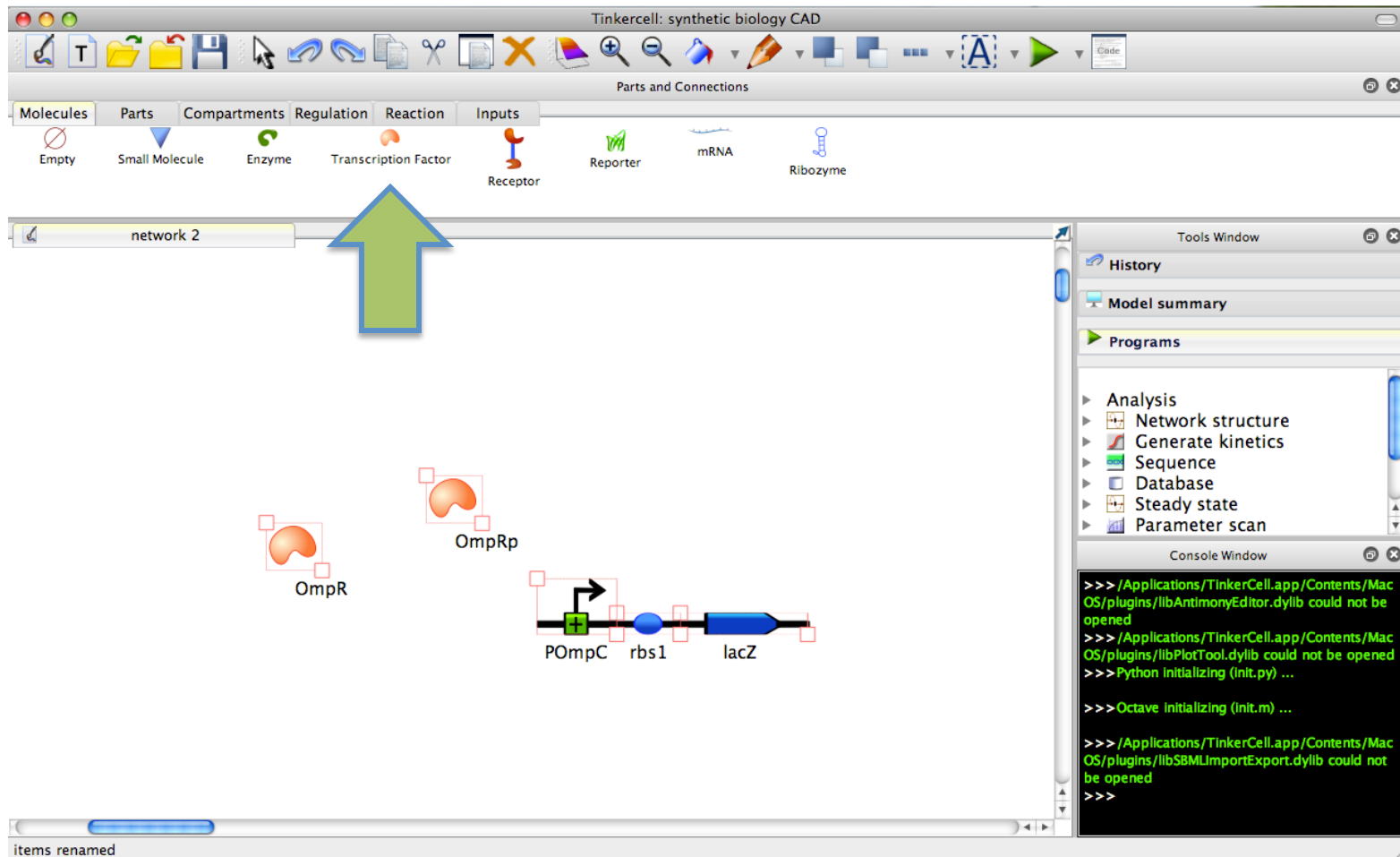
Under “Parts” tab, place “inducible promoter,” RBS, and Coding icons on canvas. It may be helpful to select the cursor arrow (6<sup>th</sup> icon on the top bar, shown in red) to change parts.

# Align and name report gene elements



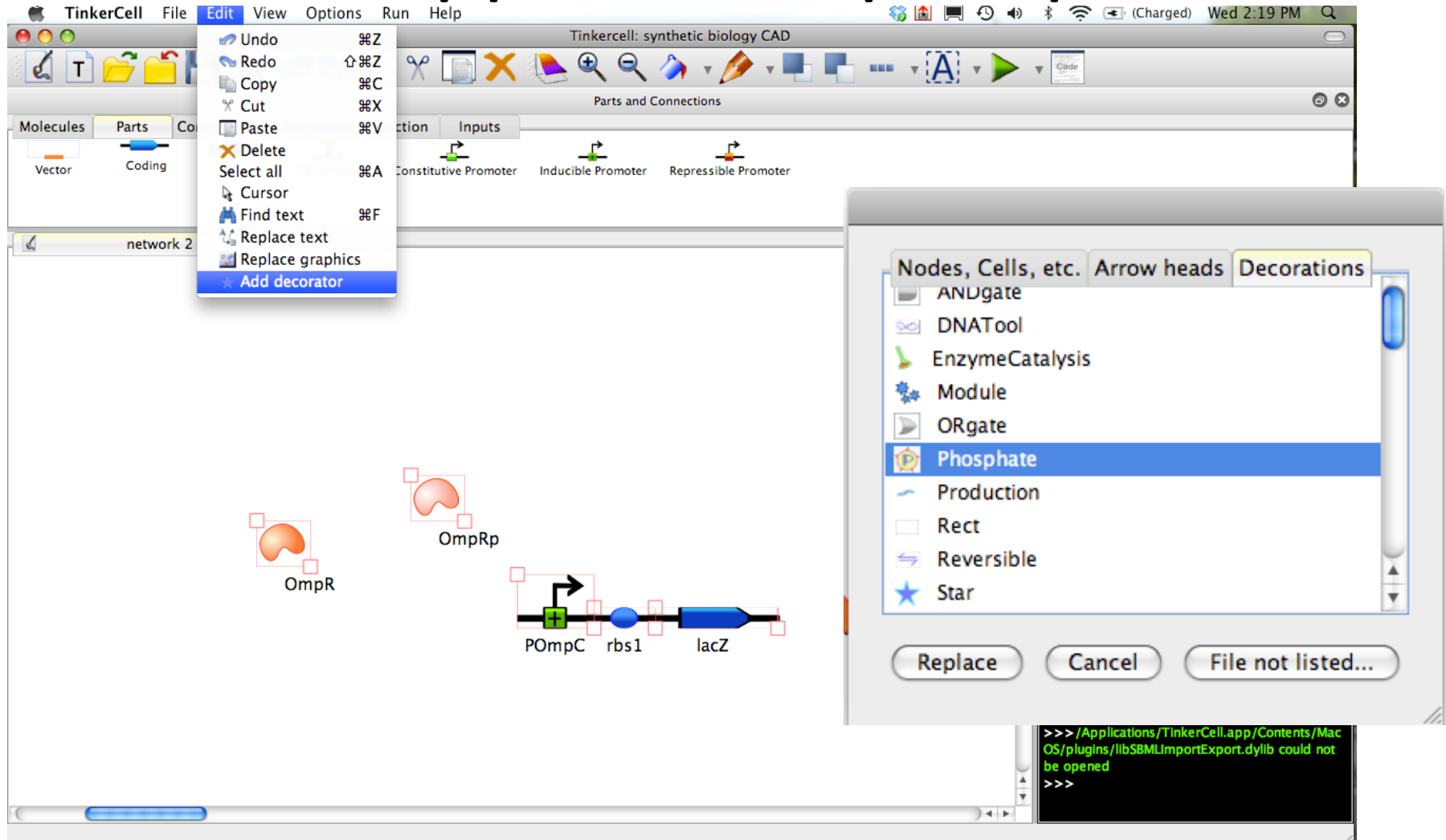
Drag items on the canvas next to one another to align them (they'll turn red when they are connected). Alternatively, select the three parts and then use the “align” option from the drop down menu. Finally, click on the name and rename the parts to reflect what they are.

# Add transcription factors



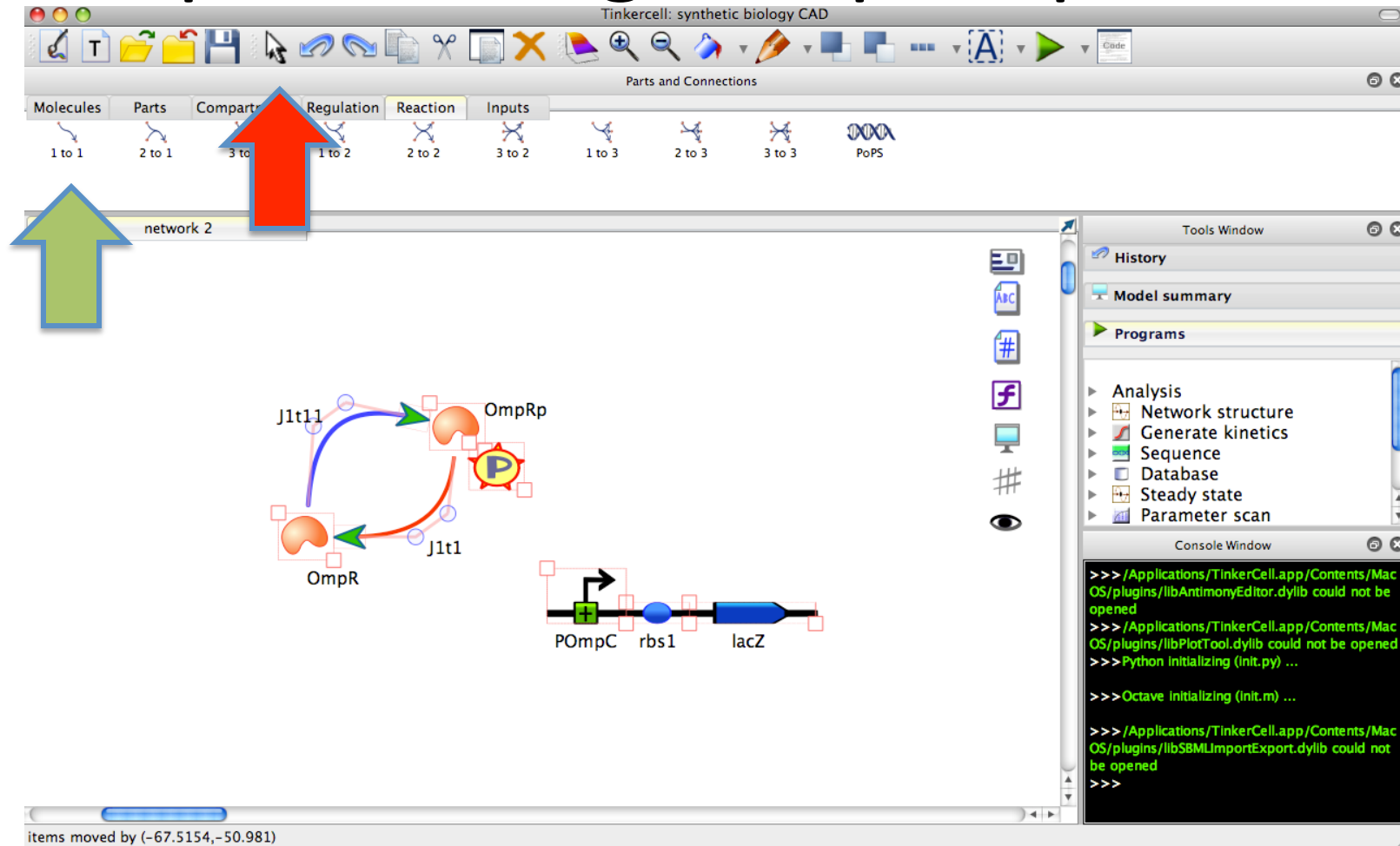
From the “molecules” tab at the top of the page, select transcription factor, and print two onto the canvas. One will represent the phosphorylated form of OmpR, and the other will be the de-phosphorylated form.

# Visual appeal: add phosphate



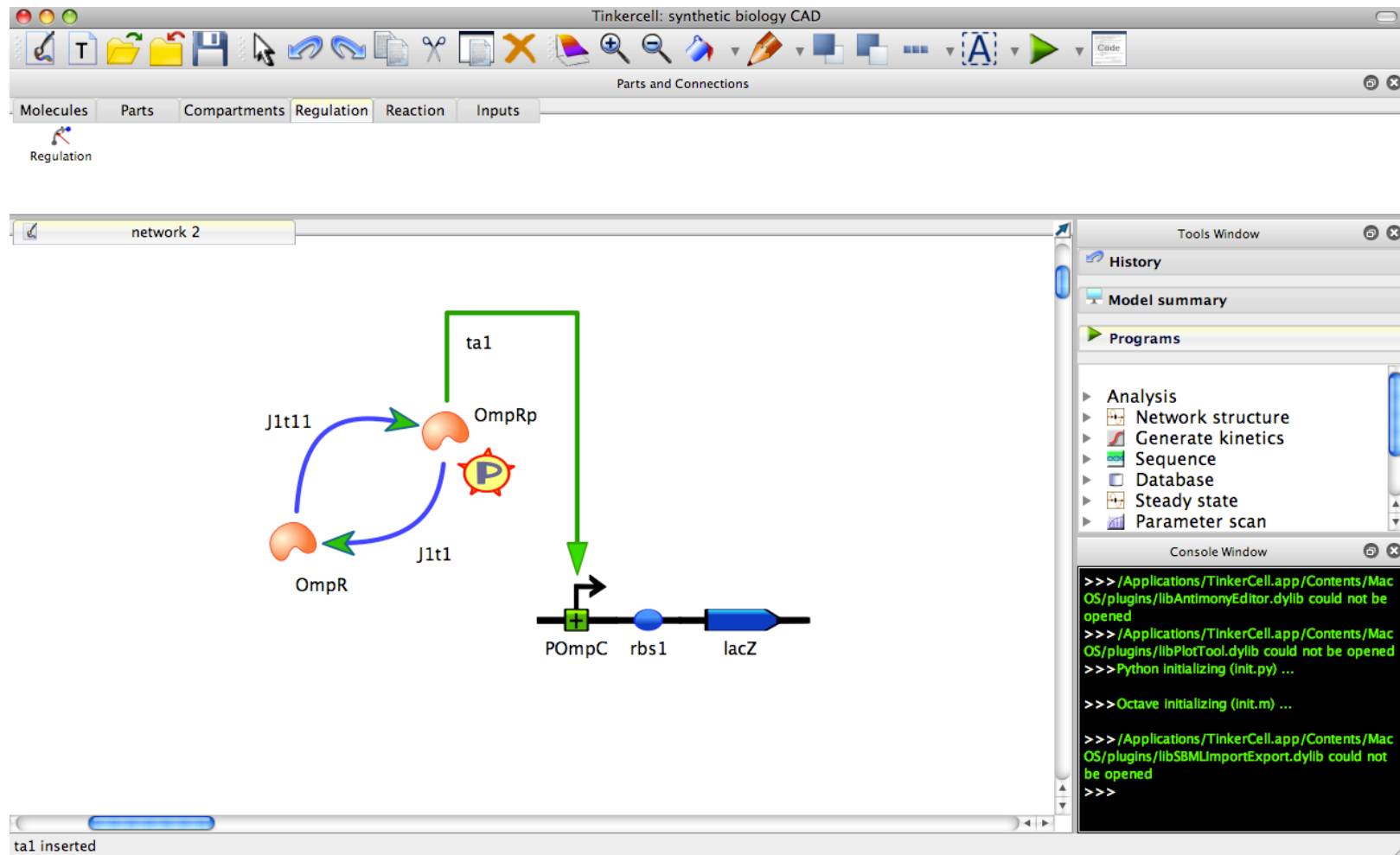
From “edit” menu at the very top of the screen, choose “add decorator.” A pop-up screen (shown on the right here) will allow you to “replace” the OmpRp with a phosphorylated icon.

# OmpR kinasing and phosphatasing



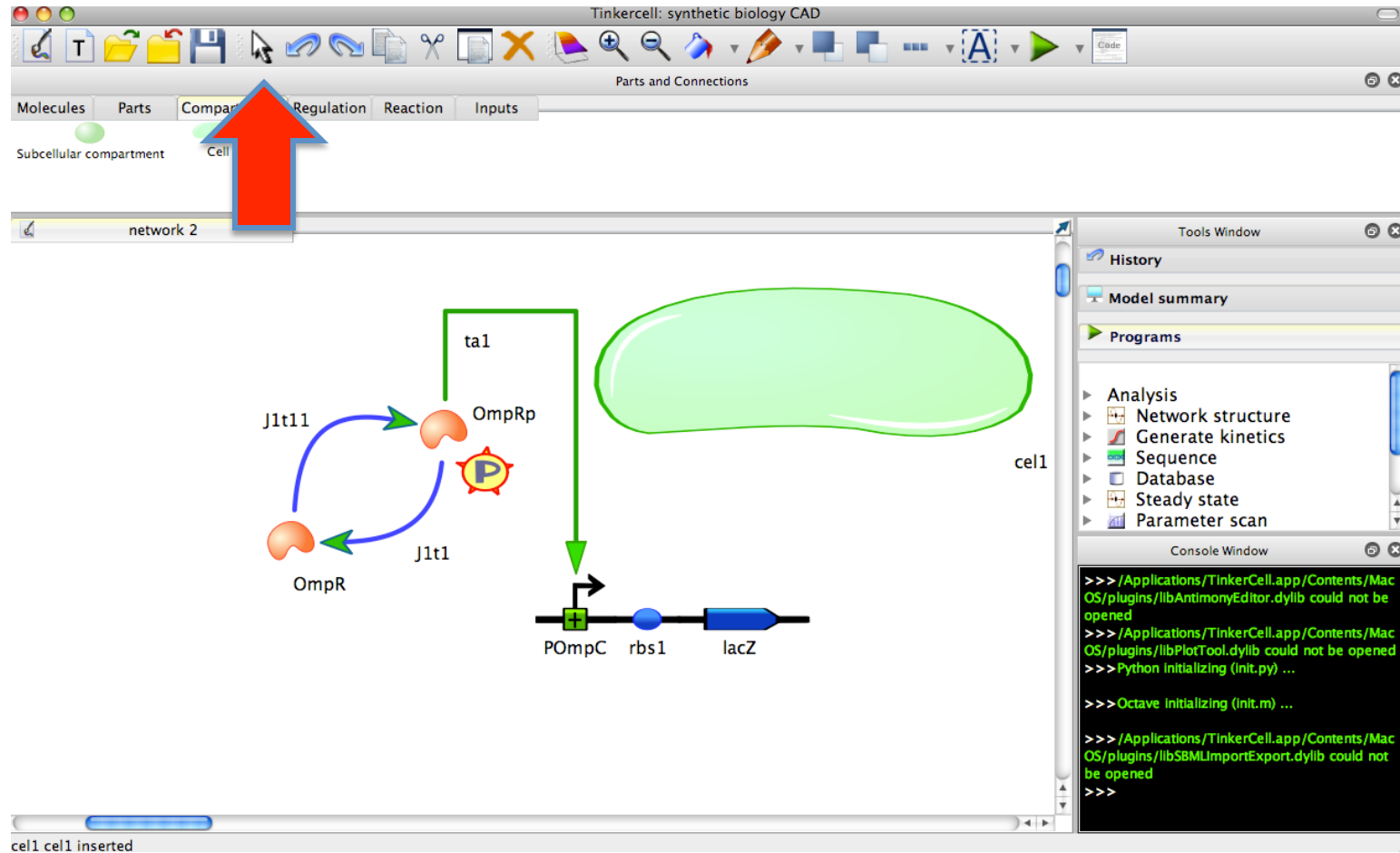
From the “reaction” menu, choose “1 to 1” (green arrow above) and then click on OmpR and OmpRp to add a reaction for that conversion to the canvas. You can reshape the reaction arrow and move the reaction label by clicking on the cursor arrow (indicated by red arrow above) and then dragging the canvas icon.

# Regulate Transcription



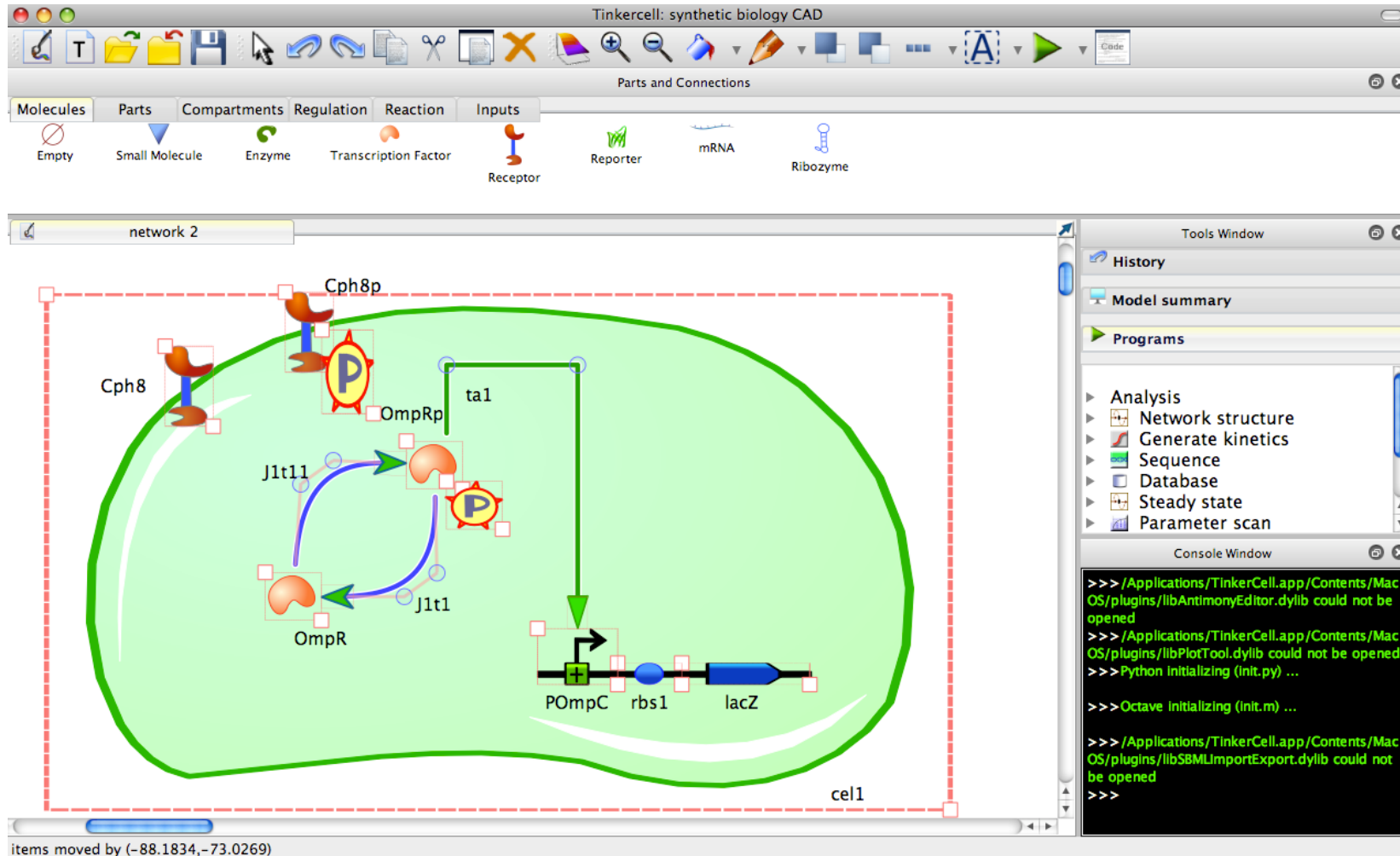
From the “Regulation” menu, select the regulation icon and then click on OmpRp and the pOmpC box to add that regulatory reaction

# Add a chassis



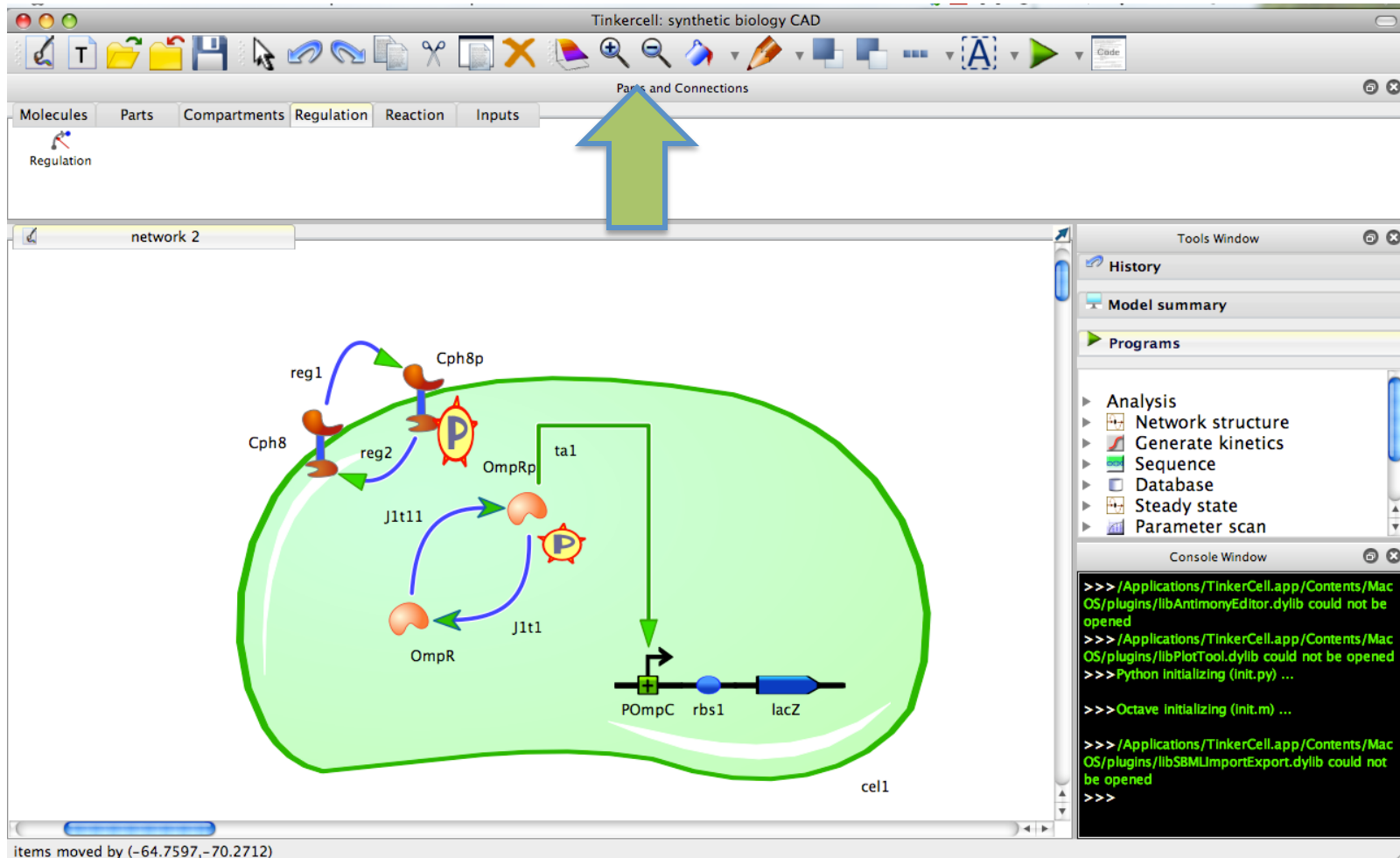
From the “compartments” tab, choose “cell” and print one on the canvas. Use the cursor arrow from the main menu bar to select the cell then move and resize it so it encases the transcription factors and reporter construct.

# Add the light sensor, Cph8



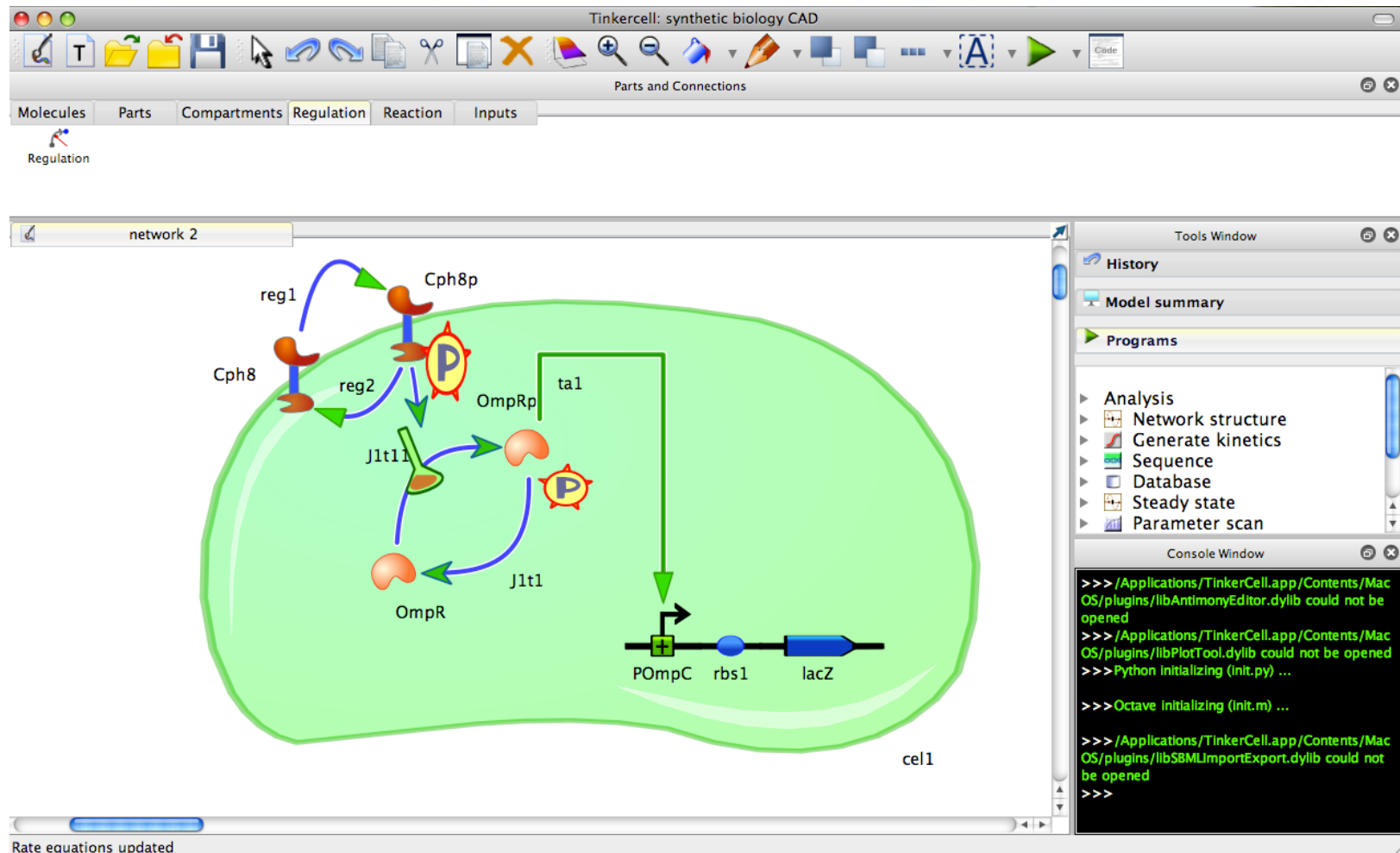
From the “molecules” tab, choose “receptor” and print two to the cell’s membrane. Rename them Cph8 and Cph8p and add a phosphate decoration if desired.

# Add regulatory reactions to show the conversion between Cph8 and Cph8p



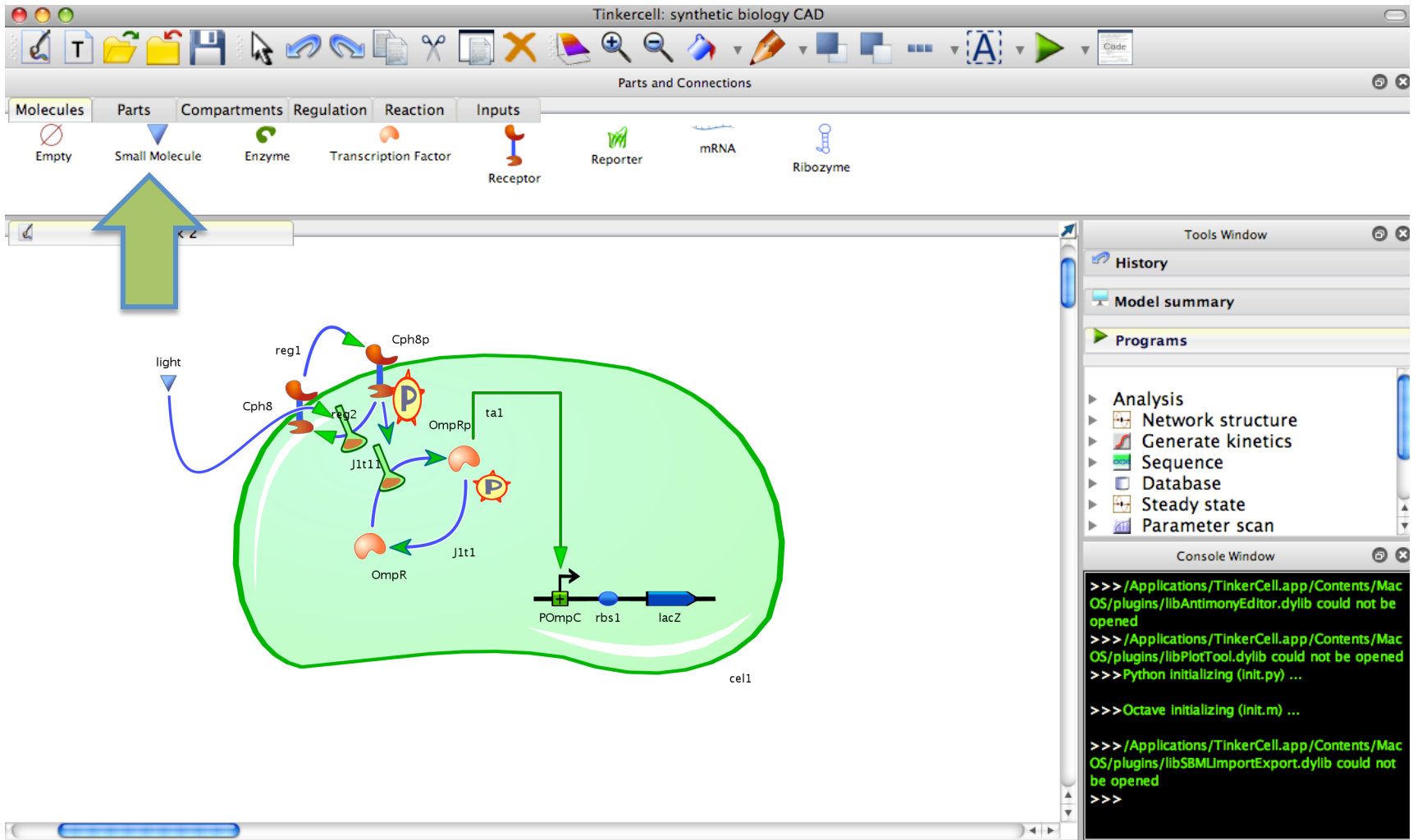
Use two of the “1 to 1” reactions to connect the receptors. If you are having trouble selecting the objects on the canvas, you can zoom in or out using the magnifier icons.

# Connecting the response regulators



Using the “regulation” reaction, connect the phosphorylated form of **Cph8** to the reaction arrow that converts OmpR to OmpRp.

# Adding Light!



From the “molecules” tab, choose “small molecule” for the canvas. Rename it “light” and add a “1-1” regulatory reaction from the light triangle to the reaction that converts OmpRp to OmpR