

Abstract

**SYSTEMS, METHODS AND COMPOSITIONS
FOR OPTICAL STIMULATION OF TARGET CELLS**

Methods, systems and devices are implemented in connection with light- responsive ion channel molecules. One such method is implemented using a light- activated ion channel molecule that responds to a light stimulus. The method includes engineering the light-activated ion channel molecule in a cell; and activating the ion channel molecule, in response to light stimulus that is provided to the ion channel molecule and that has properties that do not activate a ChR2 ion channel, to allow ions to pass through the light-activated ion channel molecule.

Figure 1