

Select your cGMP inducing gene(s) of interest (such as a putative guanylate cyclase).



Clone the sequence of each of the genes you wish to assess into a protein expression vector such as pDEST17TM (Invitrogen).



Co-express each clone in BL21-AI with either the *OPTXcGMPR:LUC* or *OPTXGARE:LUC* reporter to assess if cNMP is produced



Select most promising candidates to investigate further



Express the selected protein and verify *in vitro* activity by assessing cGMP and or cAMP produced using conventional kits or mass spectrometry
(save time and money by only assessing the most promising candidates)



Mutagenesis of putative domains or residues within the protein deemed important for cNMP production

