

# Spatial restrictions in chemotaxis signaling arrays: a role for chemoreceptor flexible hinges across bacterial diversity

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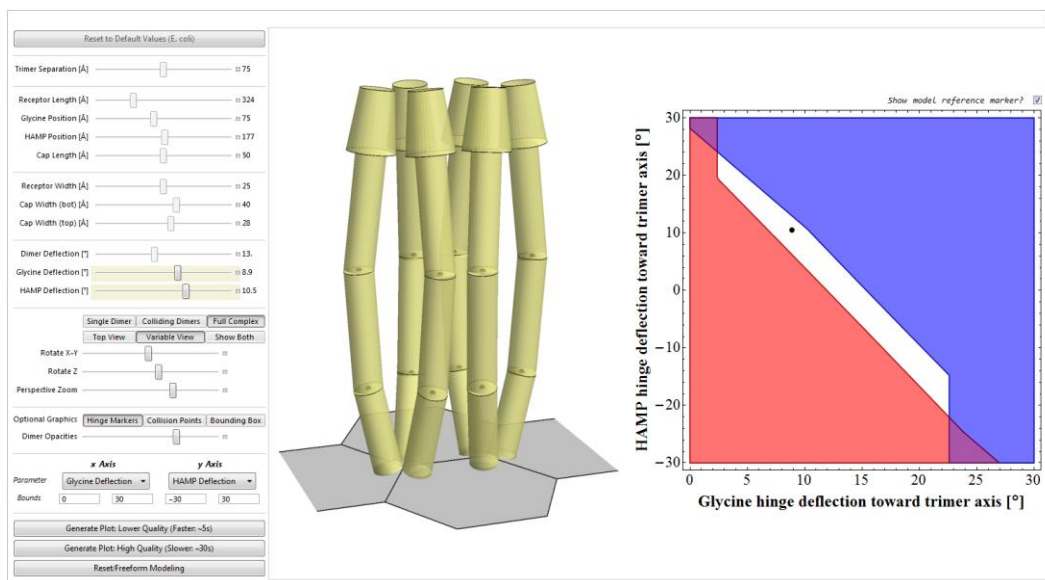
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## Instructions for Interactive Modeling Utility:

Modeling tool is available as a Mathematica Computable Document Format (cdf) file that can be downloaded here. It requires installation of the free Wolfram Player [<https://www.wolfram.com/player/>] or the full Mathematica suite. The free CDF player restricts file import/export, so models and plots are saved as screenshots. The utility generates interactive models and plots based on user-defined parameters starting with default values for *E. coli* (Akkaladevi et al., 2018). Interested scientists can change other variables such as receptor length, trimer separation, dimensions of the periplasmic domain and the position or number of flexible hinges by using sliders (figure below, left panel) and the utility displays the resulting geometry of a single core complex (figure below, center panel). Optional graphics controls adjust the angle from which the model is viewed. Two-dimensional plots showing forbidden and allowed combinations of two, operator-chosen variable parameters are generated from operator-chosen values for fixed parameters and the range of variable parameters. A 'plot marker' option places a point on the plot corresponding to the current values, and will adjust as those values are altered. This allows users to correlate the plot to the physical geometry in real space.



Screenshot of the downloadable modeling/plotting utility