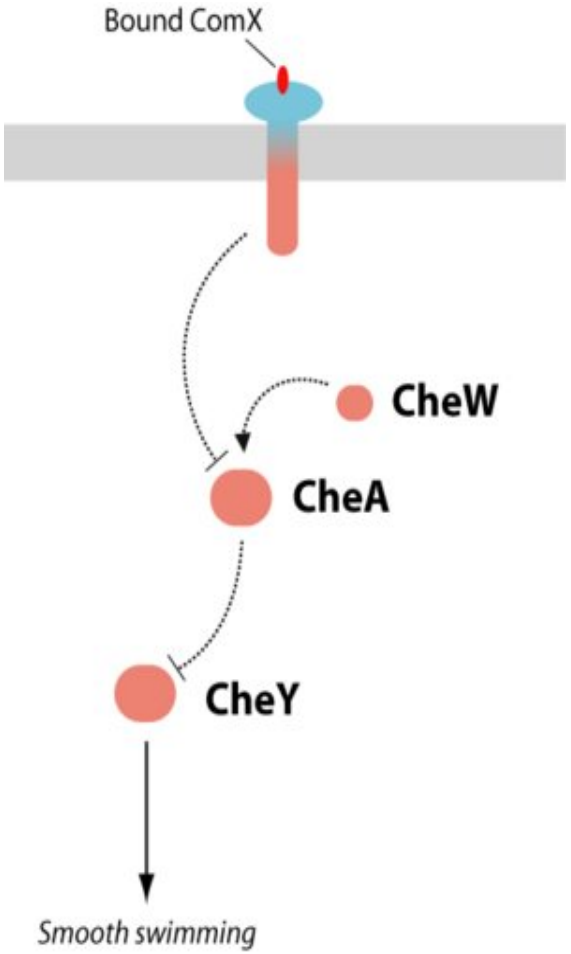
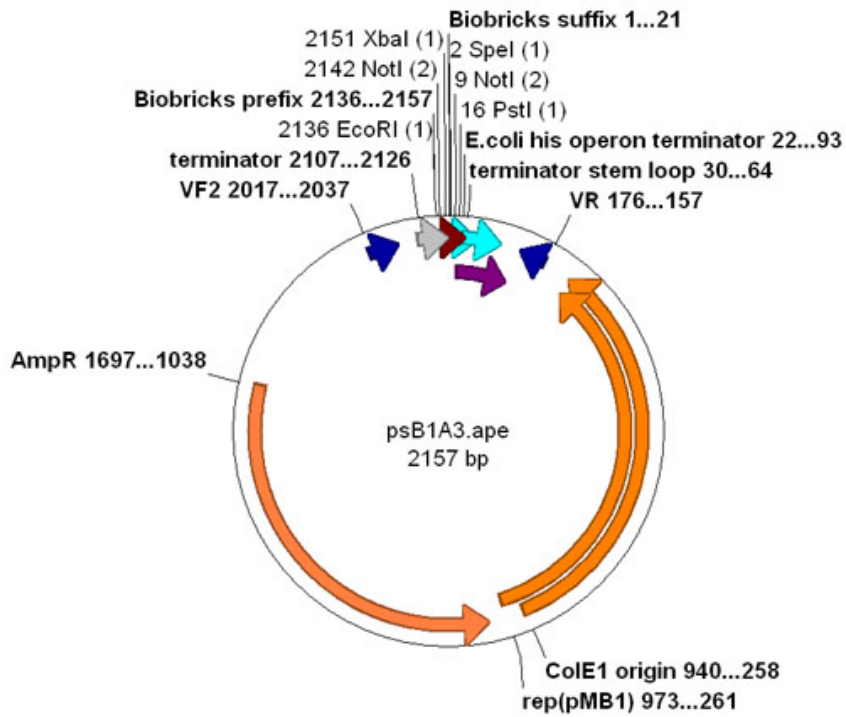
Rice 2006- ‘Seek and destroy E.coli’

- Project description 2006:
  - Engineer E.coli to detect and move towards B.subtilis pheromone (Com X)
  - When in close enough proximity to the target (high levels of ComX) and when there is a high enough E.coli cell density, a ‘kill’ mechanism is activated – secretion of a gram-positive toxin.
  - Key concept: integration of chemotaxis and quorum signalling.



Rice 2006 - ‘Seek and destroy E.coli’

- Experimental work:
  - PCR – amplification of Tsr, ComQX, A and P genes.
  - Ligation of above genes into pSB1A3.
    - (High copy no. plasmid with amp resistance)
  - Transformation of E.coli strain RP8611 (null for all MCP receptors).
  - Swarm plate assays



Rice 2006 - ‘Seek and destroy E.coli’

- Difficulties:
  - Didn’t get any further other than amplification of tsr and B.subtilis genes!
  - Unable to produce a ComP-tsr chimeric receptor.

- 2007:
  - Changed the target species to V.harveyi – tried to produce a chimeric LuxN-tsr receptor.

Havard 2007 - ‘Cling-*E.coli*’

- Project description:
  - Engineer bacteria to adhere to targets with a high degree of specificity
    - Successfully fused histidine and strep2 tags with outer membrane proteins LppOmpA and AIDA-1.
  - To affect downstream quorum-sensing after contact is made with the target substrate.