# Synthetic bacteria programmed to deliver cancer drugs inside body directly to tumor

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A synthetic genetic circuit programmed into an attenuated *Salmonella enterica* subspecies can be used to systemically deliver an anti-tumor toxin into mice with cancer. The circuit allows the bacterial cells inside a tumor to synchronously self-destruct by lysis, releasing the toxin directly in the tumor. The treatment of mice with the engineered bacteria is described by researchers at the University of California, San Diego (UCSD), today (July 20) in *Nature,* pointing to a way to harness bacteria for cancer drug delivery.

For the present study, the team modified the circuit to include a gene expressing an anti-tumor toxin—haemolysin E, which accumulates inside the cell—and a gene for a bacteriophage protein that lyses bacteria. Once the AHL reaches a critical level, the bacteriophage lysis protein is expressed, kick-starting a negative feedback loop, allowing the cells to go through a cycle of growth followed by lysis when a population threshold is reached, leaving behind only a few surviving cells.

**Read full, original post:** Arming Synthetic Bacteria Against Cancer