

Detection of *Salmonella infantis* and *Salmonella schwarzengrund* Using CANARY[®] Technology

Introduction:

PathSensors Inc.'s (PSI) Japanese distributor, Ensensor, requested information on the performance of PSI's Salmonella Zephyr Assay with three strains of Salmonella: *Salmonella schwarzengrund*, *Salmonella infantis*, and *Salmonella manhattan*. These specific strains have not been tested in the past. We obtained two strains, *S. infantis* and *S. schwarzengrund*, from the American Tissues Culture Collection (ATCC). These two strains were cultured under standard conditions (outlined below) and tested with the CANARY Salmonella Assay.

Methods:

The *Salmonella* strains were reconstituted and streaked for isolation on LB agar (*S. infantis*) or trypticase soy agar (*S. schwarzengrund*), respectively. Following incubation at 37°C for 24 hours, bacterial colonies were streaked onto new agar plates for subsequent liquid broth inoculations; the plates were incubated at 37° C until bacterial confluency was observed. The bacteria from these plates were used to inoculate 5 mL of LB broth or trypticase soy broth and incubated overnight at 37° C. The following day, the cultures were serial diluted (1:10) and enumerated. The dilutions were processed and tested with the CANARY Salmonella Assay following standard protocol.

Results:

As shown in figure 1, the CANARY Salmonella biosensors detected *S. schwarzengrund* and *S. infantis*.

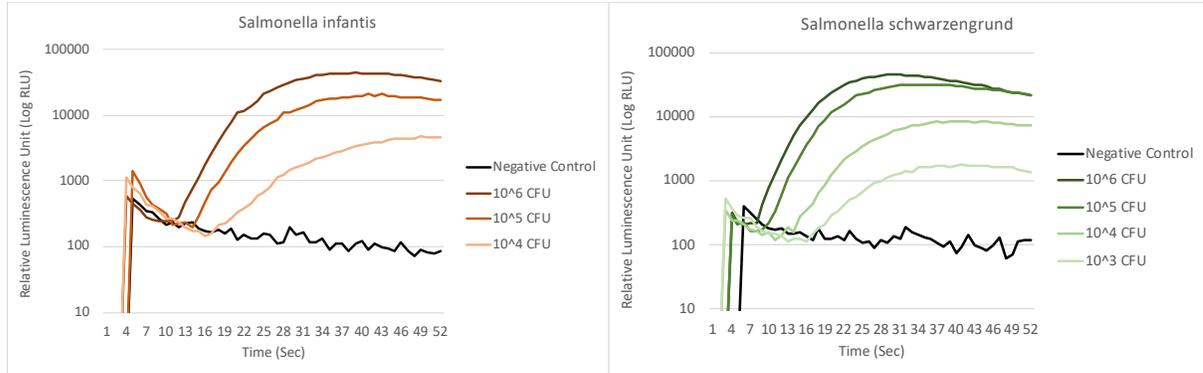


Figure 1: CANARY Salmonella Biosensors Raw Data Curves. Biosensor cells were exposed to a serial dilution of either *S. infantis* (A) or *S. schwarzengrund* (B) ranging from 1×10^3 CFU to 1×10^6 total bacteria. The light output was measured with PathSensors' Zephyr instrument. Colored curves represent positive calls while the black curves represent background signal.

Summary and Conclusions:

CANARY Salmonella biosensors react to different strains of *Salmonella* with varying levels of light output. The two strains tested in this report display the anticipated analytical limits of detection as seen with other strains (1×10^2 to 1×10^4 CFU) and are within the tolerance limits set for the assay. Following the assay's enrichment protocol, the CANARY biosensors will be able to detect down to 1 CFU per 25 gram sample as prescribed by the USDA and FDA regulations.