

Supplemental Methods

Ligated ileal loop surgery

Bottle-raised Angus-cross calves aged 3-6 weeks were used for ligated ileal loop surgery. Anesthesia was induced with intravenous propofol and maintained with inhalant isoflurane. Each calf was placed on the ventilator and ventilated routinely. All calves received 10 mL/kg of 0.9% NaCl intravenously during anesthesia. Analgesia was provided by administration of epidural morphine prior to the start of surgery. Calves were monitored continuously by a licensed veterinarian or trained technician under direct supervision of a veterinarian while under anesthesia. Heart rate, non-invasive blood pressure, depth of anesthesia, electrocardiograph, and nasal temperature were measured at least every 15 minutes for the duration of the experiment. Intravenous fluid boluses above maintenance rate and dobutamine were used as needed to maintain the mean arterial blood pressure above 60 mmHg. Body temperature was maintained above 37°C.

Calves were placed in left lateral recumbency and a right flank incision performed routinely. The cecum was exteriorized and the ileum identified. Beginning approximately 10cm oral to the ileocecal valve, intestinal segments were tied into isolated loops using umbilical tape. Loops were 4-6cm in length and were isolated from the neighboring loop by a 1cm spacer loop. Loops were tied in the aboral to oral direction within intestine containing visible Peyer's patches. Following inoculation, the intestine was returned to the abdomen and the body wall closed with towel clamps and covered with moistened surgical towels. At 12 hours post-infection, the incision was opened and intestinal segments excised individually. The calf was euthanized by overdose of pentobarbital.