Escherichia coli bacteria

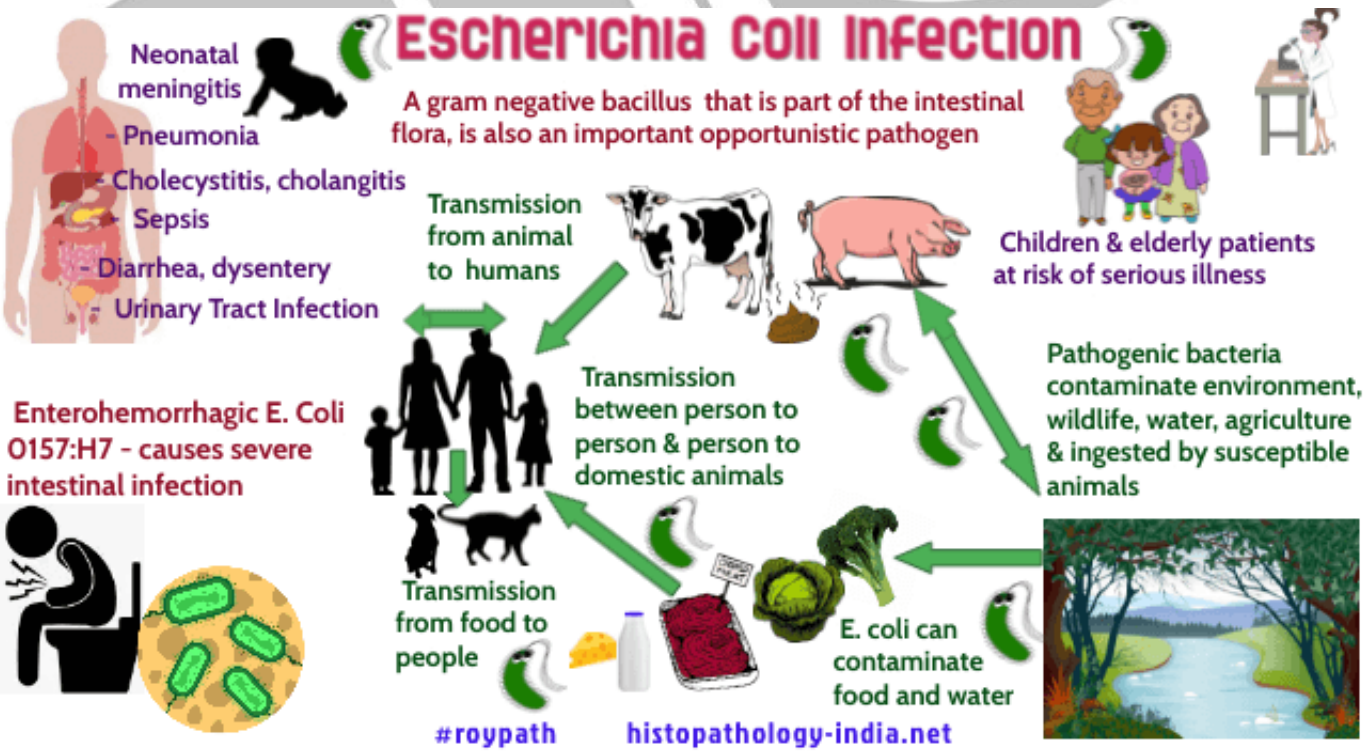
Source:TH

Researchers have successfully transformed **genetically engineered *Escherichia coli bacteria (E. coli)*** into self-powered chemical sensors.

- *E. coli,* a **Gram-negative**, rod-shaped **bacterium in the Enterobacteriaceae family,** resides in human and animal intestines. It **helps maintain gut microbiota balance** and indicates fecal water contamination.

Engineered *E. coli*

- **About:** Engineered E. coli acts as a **bio-sensor,** capable of detecting chemicals, processing signals, and producing electrical outputs.
- **Significance:** Traditional biosensors, like **enzyme-based ones,** are fragile, costly, and slow in complex environments. Whole-cell biosensors using living microorganisms can **self-repair and function in contaminated samples.**
  - It can be used as a cheaper, robust, and programmable alternative to conventional enzyme-based biosensors.
- **Applications:** Biosensors detect **water toxins, monitor pollution, warn public health risks**, work with portable electronics, and advance programmable bioelectronics.



Read more: Sensor for Parkinson's Disease Management