RAMA UNIVERSITY

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FACULTY OF ENGINEERING &TECHNOLOGY

DEPARTMENT OF BIOTECHNOLOGY

Ames test

Ames test is a method for evaluating mutagenic effects of implant device, chemicals, and drug utilizing bacteria to detect carcinogens and mutagens.

It is widely used to test the mutagenecity of various chemicals.

This test is also called as *Salmonella typhimurium* reverse mutation assay.

It is named after Bruce N Ames; a scientist who used to assess the potential carcinogenic effect of chemicals by using a particular strain of *Salmonella typhimurium* in the 1970s.

Ames test is a valid procedure of mutagenicity and is recognized by the government agencies and corporations.

Principle

This test uses various strains of bacteria that may carry a mutation. One of the commonly used strains of bacteria is *Salmonella Typhimurium*.

It is an auxotrophic mutant which carries a mutation in a gene that contains histidine.

They are his strain and they need histidine in growth media i.e. this strain is mutant for the biosynthesis of histidine amino acid.

As a result they are unable to grow and form colonies in a medium lacking histidine.

When these mutant bacterial cells treated with chemicals, which are mutagenic causes a reversal of mutation in bacterial cells, which enables bacteria to grow on a media lacking in histidine.

More potency of a chemical leads to more number of cells forming colonies on Agar media.

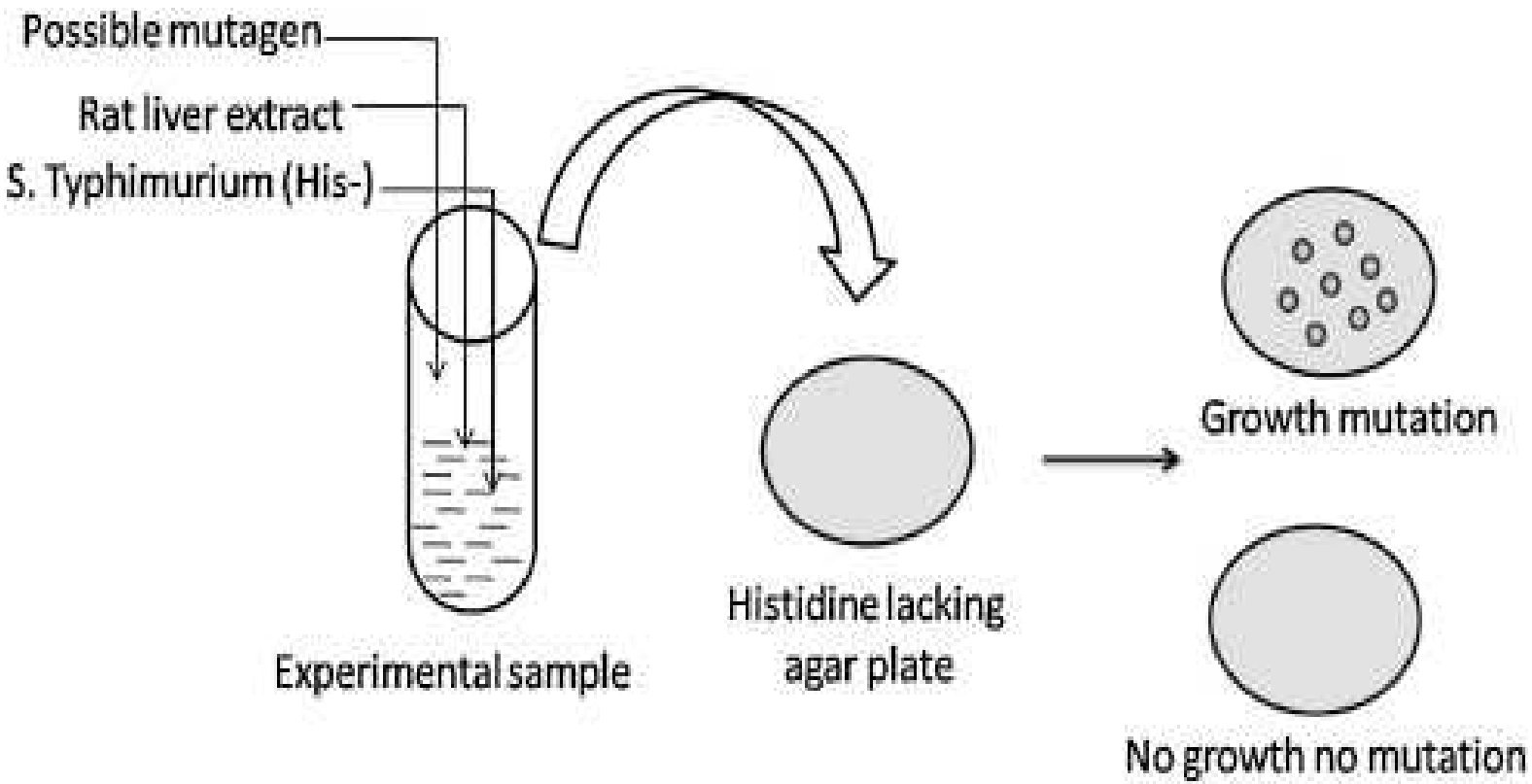

Figure: Diagrammetic representation of Ames test procedure for determining mutagenecity of chemical