

MICRO. Exam 1

1. Describe the idea of spontaneous generation and what experiments have refuted this idea?

Describe the experiment of Louis Pasteur in detail as well as the inferences that were made. What was a specific feature of the experiment that has allowed to experiment? 11

LOUIS PASTEUR DISPROVED SPONTANEOUS GENERATION AND PROVED THAT MICROORGANISMS ARE ALSO RESPONSIBLE FOR DISEASES. (GERM THEORY OF DISEASE) PASTEURIZATION: THE USE OF HEAT TO KILL PATHOGENS AND REDUCE # OF SPOILAGE MICROORGANISMS IN FOOD AND BEVERAGES.

EXPERIMENT: TWO FLASKS WITH SWAN-LIKE NECKS WERE FILLED WITH BROTH. HE BOILED THE BROTH WITH VIGOROUS HEAT TO STERILIZE THEM. AFTER HE BROKE THE NECK OFF ONE OF THE FLASKS EXPOSING IT TO AIR AND THAT HAD BACTERIAL GROWTH, WHILE THE FLASK WITH THE SWAN-NECK REMAINED STERILE.

2. Postulates of Robert Koch. List them all and their significance in microbiology. 369

KOCH'S POSTULATES:

-THE SUSPECTED CAUSATIVE AGENT MUST BE FOUND IN EVERY CASE OF THE DISEASE AND BE ABSENT FROM HEALTHY HOSTS.

-THE AGENT MUST BE ISOLATED AND GROWN OUTSIDE THE HOST.

-WHEN THE AGENT IS INTRODUCED INTO A HEALTHY SUSCEPTIBLE HOST, THE HOST MUST GET THE DISEASE.

-THE SAME AGENT MUST BE RE-ISOLATED FROM THE DISEASED EXPERIMENTAL HOST.

ROBERT KOCH: LINKED TO SPECIFIC MICROORGANISM WITH A SPECIFIC DISEASE.

HE IDENTIFIED THE CAUSATIVE AGENT (THE CAUSE) FOR ANTHRAX. HIS POSTULATES VERIFIED GERM THEORY, COULD ESTABLISH WHETHER AN ORGANISM WAS PATHOGENIC OR NOT AND WHICH DISEASE IT CAUSED.

3. Review the contribution of each scientist in the field of Microbiology: John Snow, Alexander Fleming, Ignaz Semmelweis, Joseph Lister.

-JOSEPH LISTER: ADVANCES THE IDEA OF ANTISEPSIS IN HEALTHCARE SETTINGS WITH THE USE OF PHENOL. FIRST TO UTILIZE HAND WASHING AND MISTING IN OPERATING ROOMS WITH ANTISEPTIC CHEMICALS.

-IGNAZ SEMMELWEIS: REQUIRED MEDICAL STUDENTS TO WASH THEIR HANDS IN CHLORINATED LIME WATER BEFORE ATTENDING BIRTHS TO PROTECT PUERPERAL FEVER. SHOWED THAT WOMEN BECAME INFECTED IN THE MATERNITY WARD AFTER EXAMINATIONS BY PHYSICIANS WHO HAD BEEN WORKING IN AUTOPSY ROOMS.

-JOHN SNOW: ONE OF THE FOUNDERS OF MODERN EPIDEMIOLOGY, TRACING THE SOURCE OF CHOLERA OUTBREAK, WHICH CURTAILED BY REMOVING THE HANDLE OF A WATER PUMP.

-ALEXANDER FLEMING: DISCOVERED PENICILLIN, THE FIRST FORM OF ANTIBIOTICS.

4. Review the fundamental works of Louis Pasteur and Robert Koch

SEE ANSWER TO #1 AND #2

5. Review and explain the structure of DNA 229-230