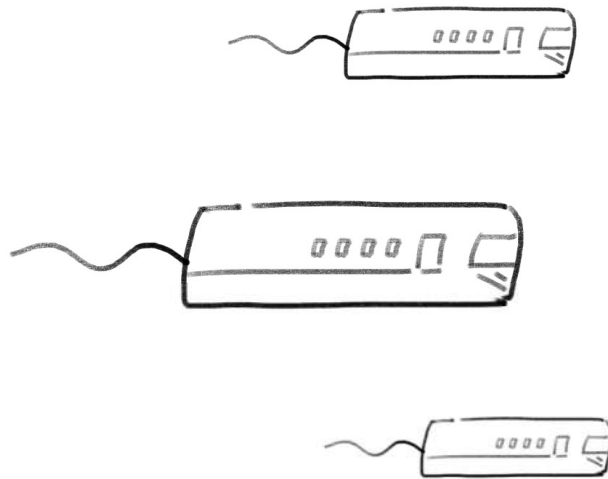


2017OUC-China

# **Chapter5**

## **Biosafty**

E.COLI IS  
NOT A  
LONELY  
INDIVIDUAL



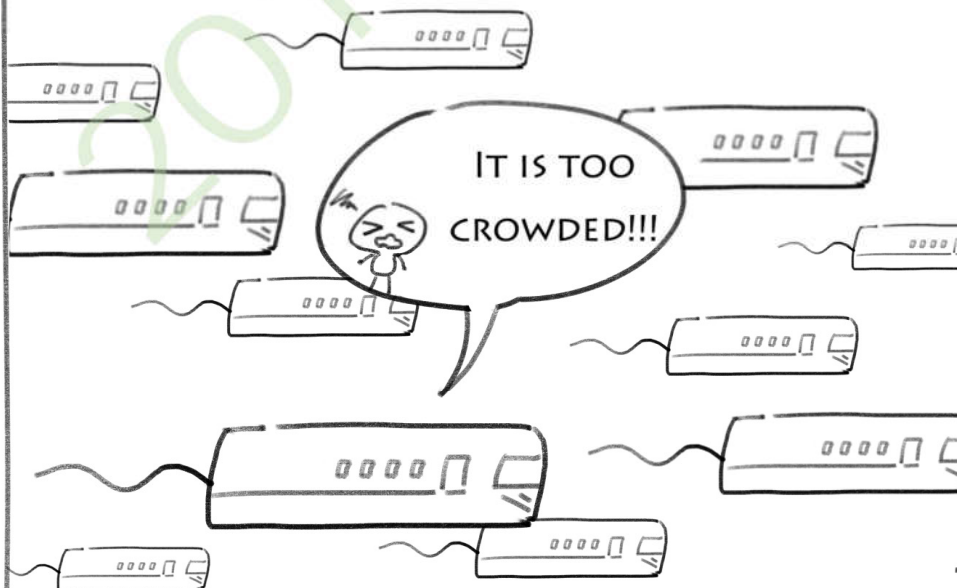
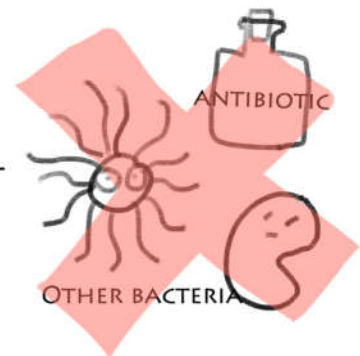
IT HAS A  
VERY  
EFFICIENT  
BREEDING  
CAPACITY.

SO, ONCE THE  
ENVIRONMENT  
IS SUITABLE  
FOR  
GROWTH.....



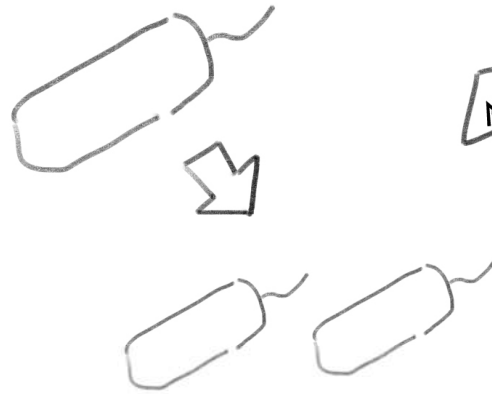
NUTRIENT-RICH

COMPETITIVE PRES-  
SURE IS SMALL



IT WILL  
MULTIPLY,  
AND BREED A  
LOT OF EXACTLY  
THE SAME  
E. COLI!

E. COLI WILL SPLIT INTO TWO, SPLIT TWICE INTO FOUR, SPLIT THREE TIMES TO BECOME EIGHT, AND SO ON. WHEN IT SPLITS THIRTY TIMES, THERE WILL BE MORE THAN 400 MILLION E. COLI!!!!



400  
MILLION  
??

OH  
MY  
GOD!!



E. COLI SPLITTING ONCE ONLY NEEDS 20MIN, AND WHEN BREEDING IT WILL PRODUCE HARMFUL SUBSTANCES. THIS IS WHY THE FOOD PUTTING OUTSIDE FOR A LONG TIME WILL CAUSE DETERIORATION.



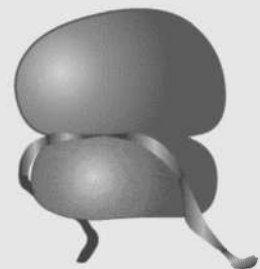
FOOD NUTRIENT-RICH FOR E. COLI AND OTHER MICROORGANISMS ARE SUITABLE FOR THE GROWTH OF THE ENVIRONMENT!

WAIT...IF THAT'S TRUE,  
WHERE DID WE COME  
FROM AND WHERE WILL  
WE GO?



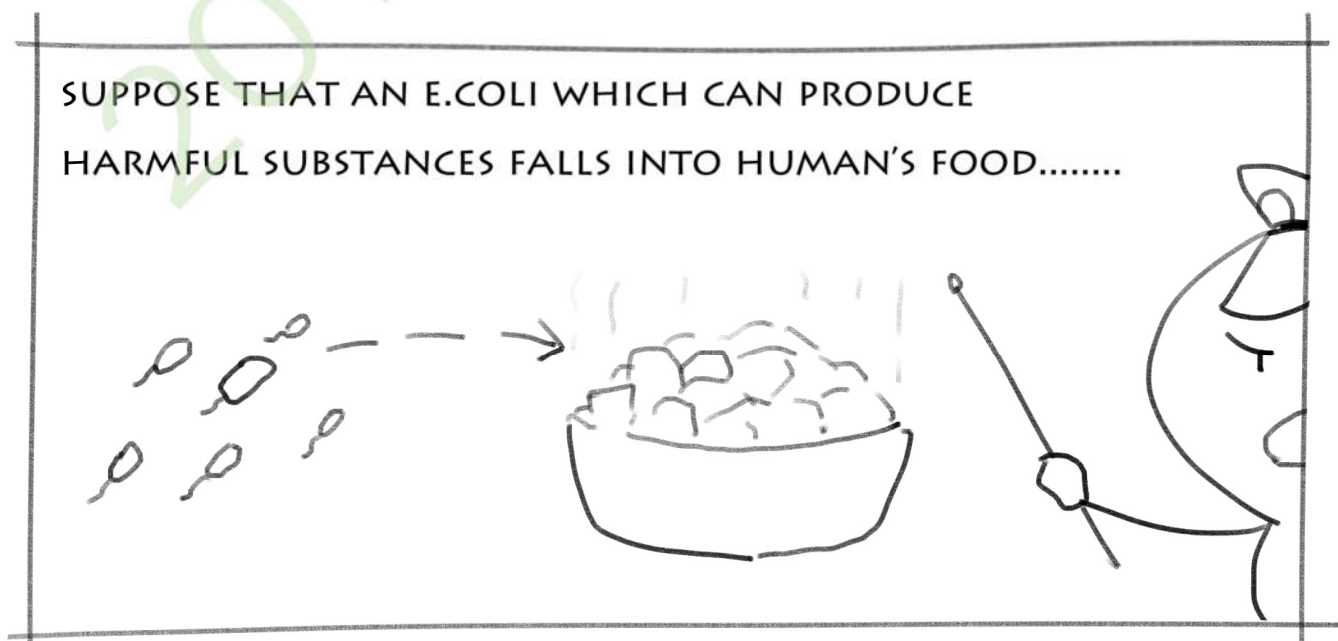
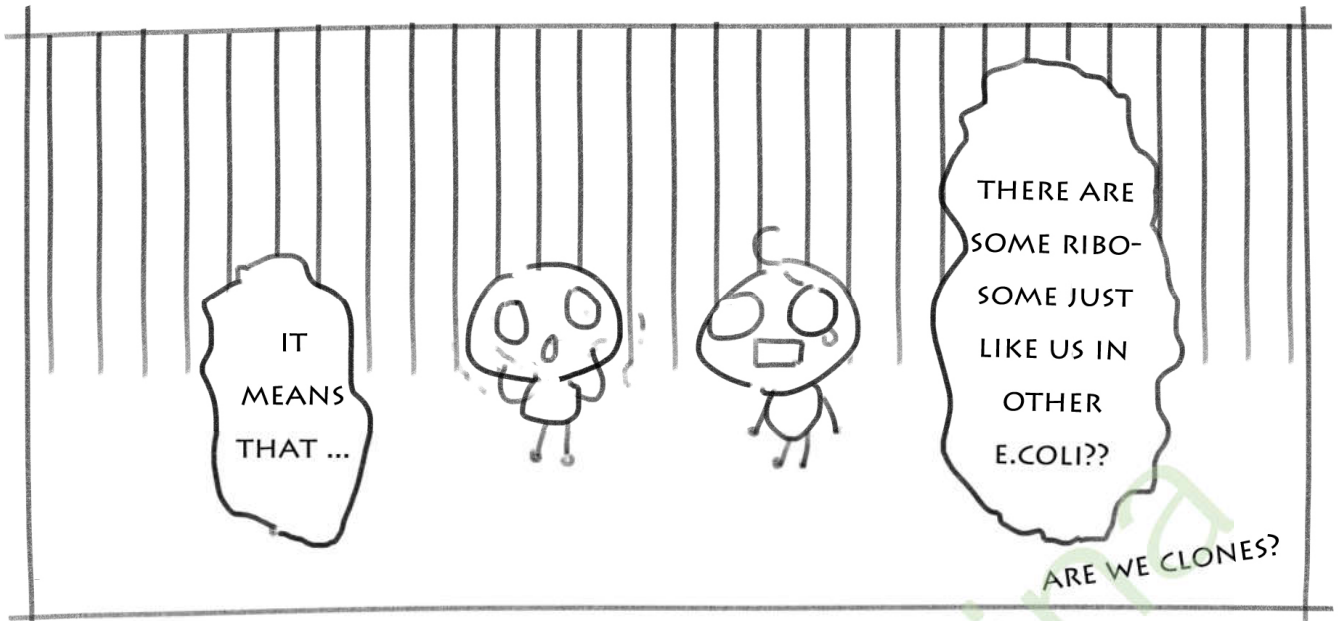
Tip:

RIBOSOME IS A ORGANELLE IN THE CELL, WHICH IS RESPONSIBLE FOR COMPLETING THE PROCESS FROM RNA TO PROTEIN, WHICH IS ALSO CALLED TRANSLATION, SO IT CAN MOVE ON MRNA

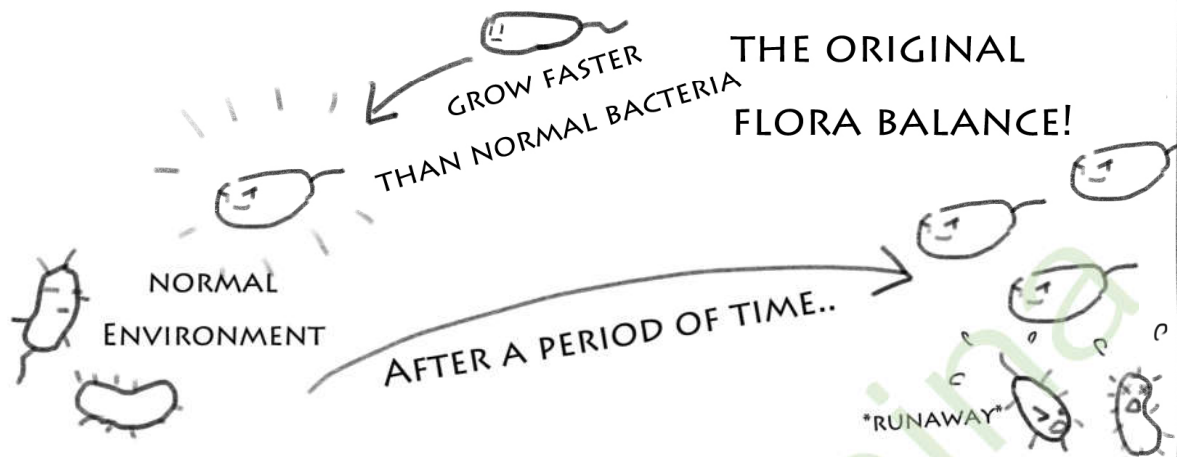


CELL DIVISION IS THE PROLIFERATION PROCESS OF LIVING CELLS. IN THIS PROCESS, THE GENE IS COPIED AND PASSED TO THE NEXT CELL, RESULTING TWO CELLS DIVIDED FROM THE SAME PARENT VERY SIMILAR .

RIBOSOMES CONTAIN PROTEINS(TRANSLATED FROM GENES) AND RNA. THEREFORE, THE RIBOSOME FORM TWO CELLS DIVIDED FROM THE SAME PARENT PROBABLY VERY SIMILAR.....



OR SOME BACTERIA WITH SPECIAL FUNCTIONS COME INTO THE NORMAL ENVIRONMENT... IT MAY DESTROY THE ORIGINAL FLORA BALANCE!



THE FORMER IS TERRIBLE,  
BUT THE LATTER IS  
NOT TERRIBLE AT ALL!

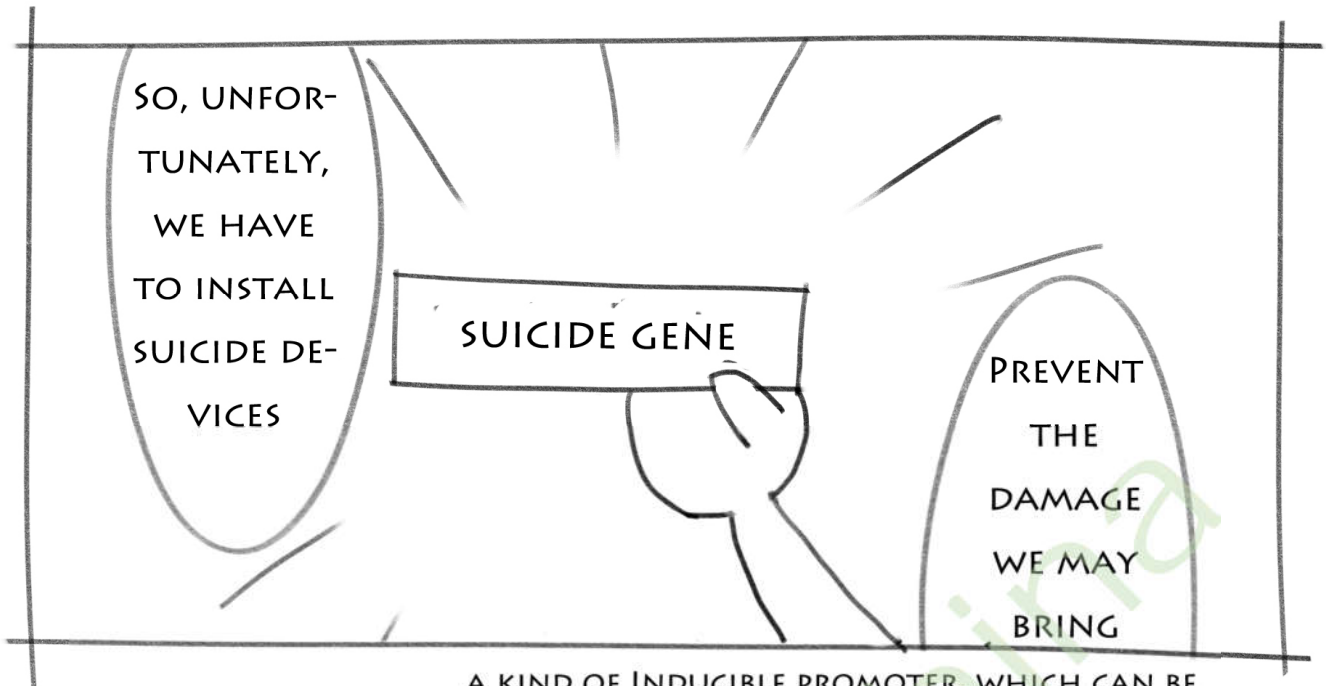


EMM... I'M TRYING TO  
EXPLAIN IT TO YOU

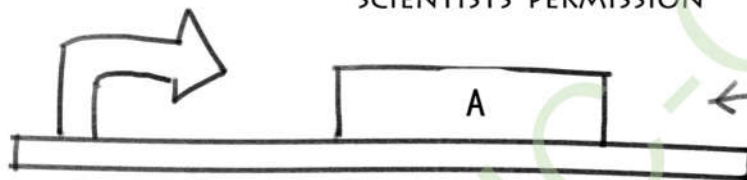


FLORA BALANCE IS VERY COMPLEX. ONCE IS DYSFUNCTIONAL, IT IS LIKELY TO CHANGE THE WHOLE ENVIRONMENT! FOR EXAMPLE, GASTROINTESTINAL FLORA IMBALANCE AND SOME GASTROINTESTINAL DISEASES ARE CLOSELY RELATED!

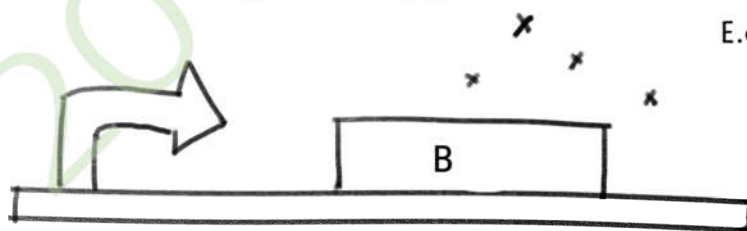




A KIND OF INDUCIBLE PROMOTER, WHICH CAN BE OPENED ONLY IN THE ENVIRONMENT UNDER SCIENTISTS' PERMISSION



AN ANTITOXIN THAT BINDS TO TOXINS SO THAT TOXINS CAN NOT WORK



A TOXIN THAT DESTROYS E.COLI AND CAUSES IT TO "COMMIT SUICIDE"

CONSTANT PROMOTER

SINCE THE TOXIN WILL ALWAYS EXIST, THE ANTITOXIN CAN BE EXPRESSED AND DETOXIFY THE CELLS ONLY IN THE PERMITTED ENVIRONMENT.

ONCE LEAVING THE ALLOWED ENVIRONMENT, E. COLI WILL COMMIT SUICIDE.  
WE FEEL SO SAD.  
BUT WE WILL EVEN BE Sadder IF E. COLI HARMS OTHERS...



SO WE HAVE  
TO WORK  
HARDER!



LET THE E. COLI  
GO IN THE RIGHT  
DIRECTION AND  
MAKE MORE CON-  
TRIBUTIONS TO  
SCIENCE!!

大肠杆菌号