

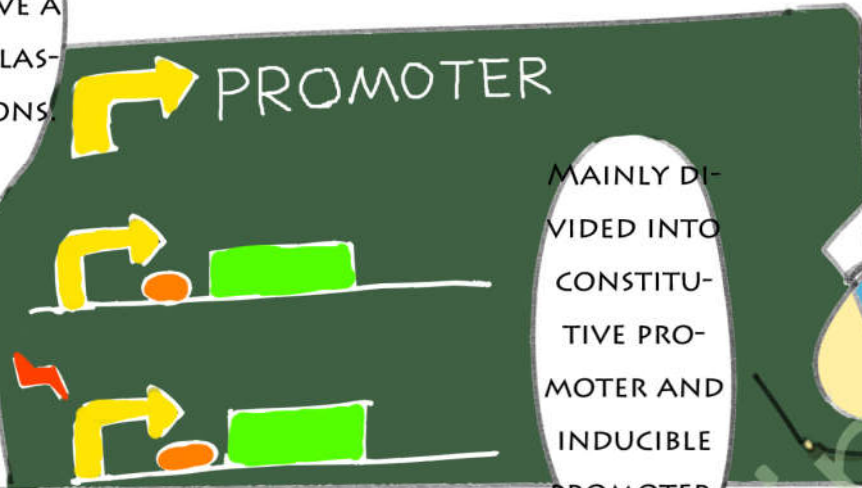


Chapter 2

LOGIC DEVICE

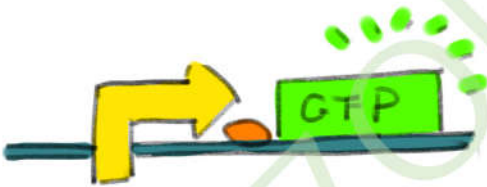
ONE DAY IN CLASS...

PROMOTERS ALSO HAVE A LOT OF CLASSIFICATIONS.

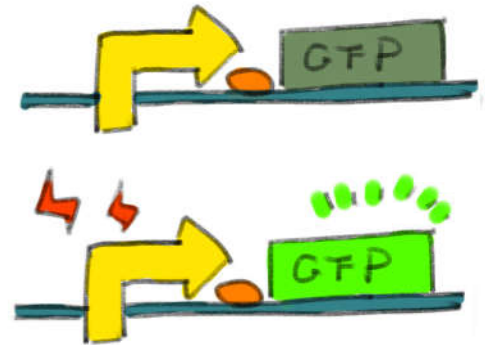


MAINLY DIVIDED INTO CONSTITUTIVE PROMOTER AND INDUCIBLE PROMOTER.

CONSTITUTIVE PROMOTER (CONSTANT PROMOTERS)



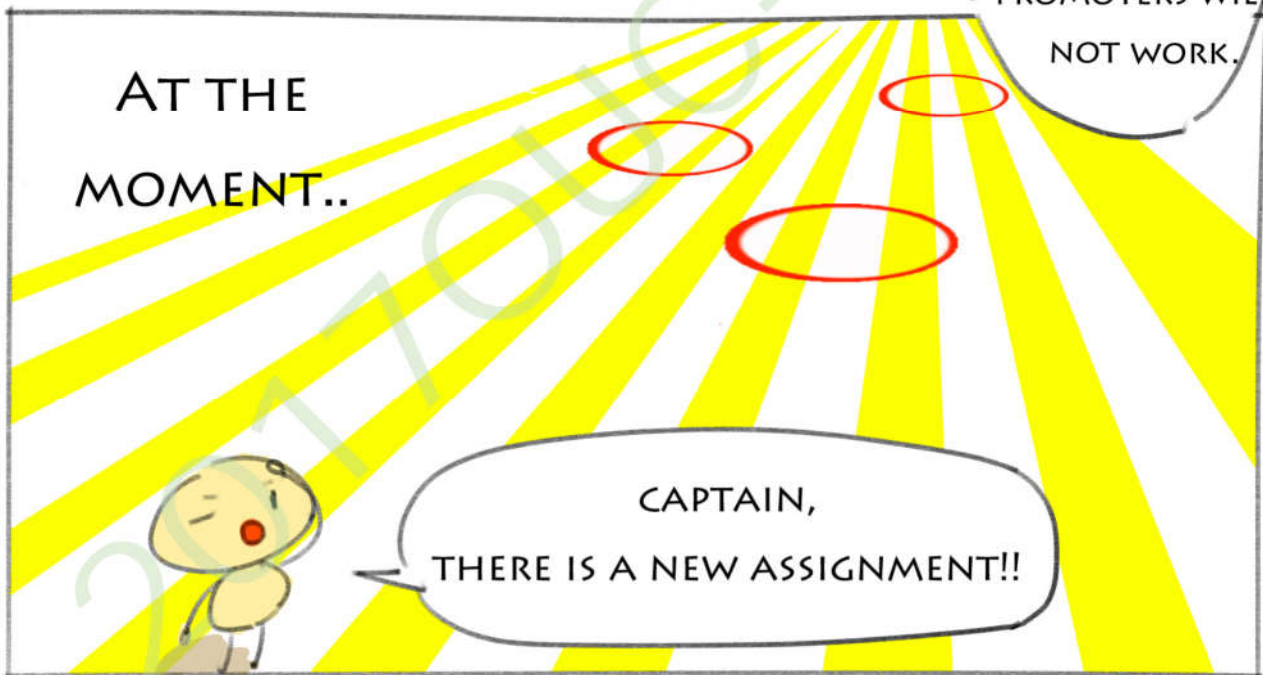
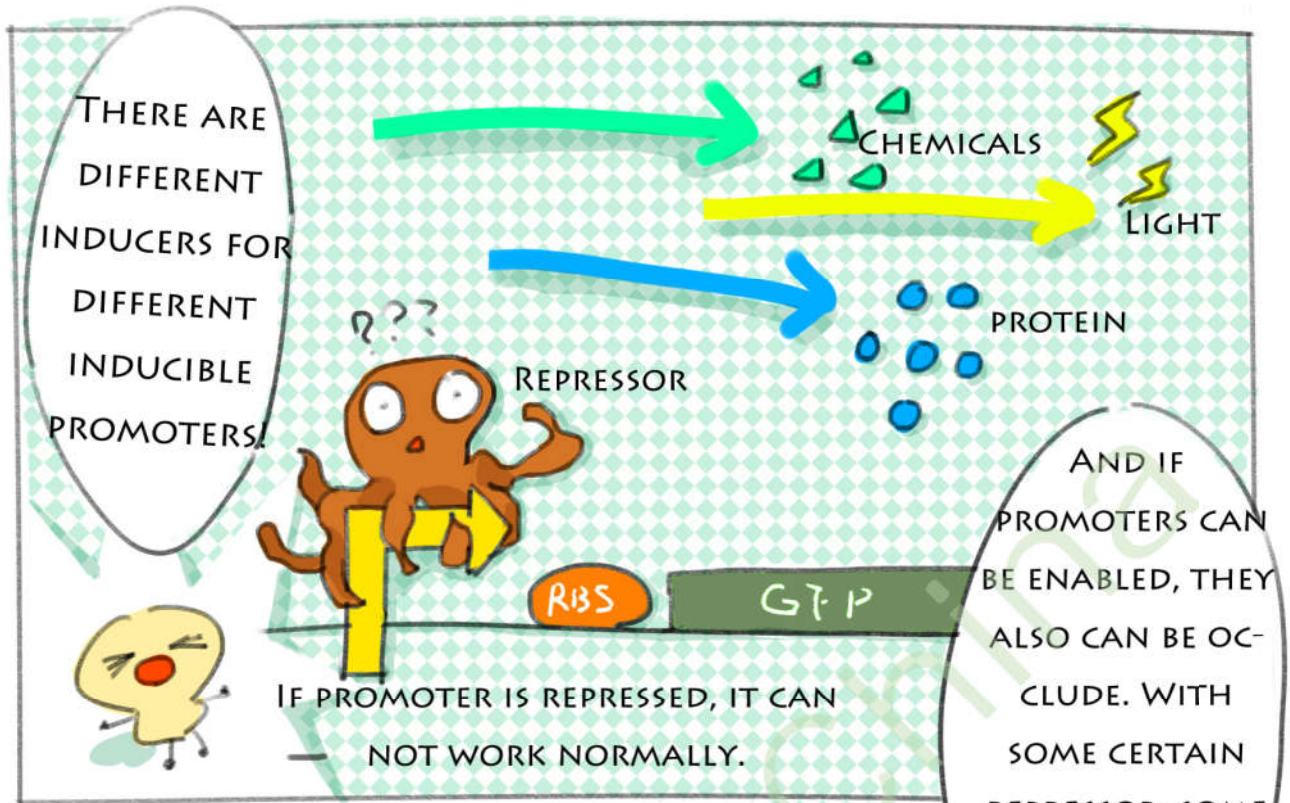
INDUCIBLE PROMOTER



CONSTITUTIVE PROMOTERS ARE OPEN IN NORMALLY! YOU WILL UNDERTAKE WORK AS SOON AS YOU SEE THEM.



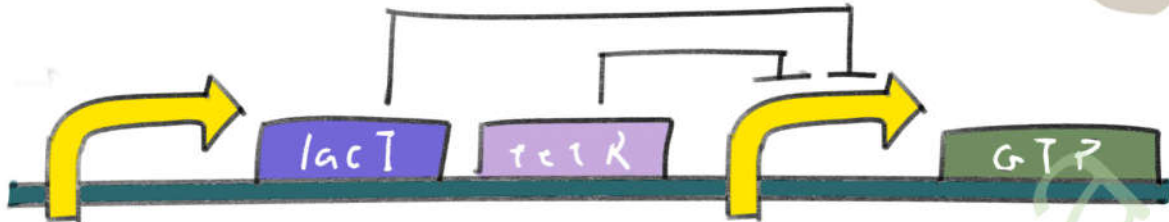
HOWEVER, INDUCIBLE PROMOTERS ARE OPENED BY SPECIFIC SUBSTANCE OR SIGNAL.



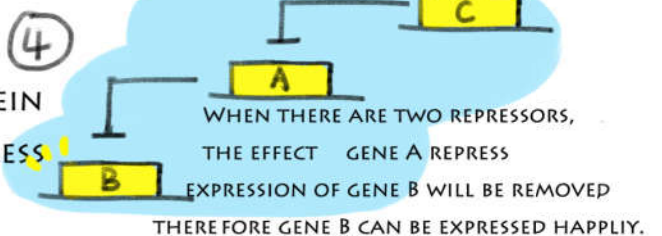
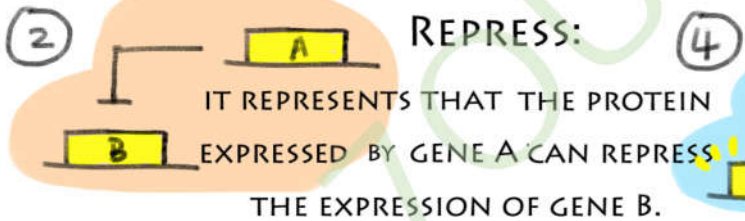
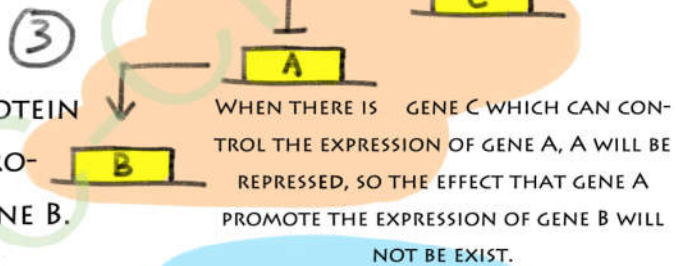
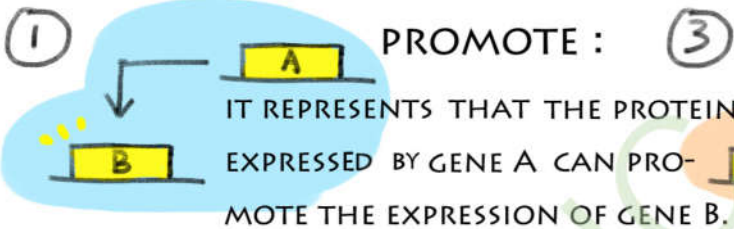
IT IS THE POST-TRANSCRIPTIONAL CONTROL



EMMM. HOW ODD!
THE PROTEINS PRODUCED FROM THESE
TWO GENES OTH ARE REPRESSORS.

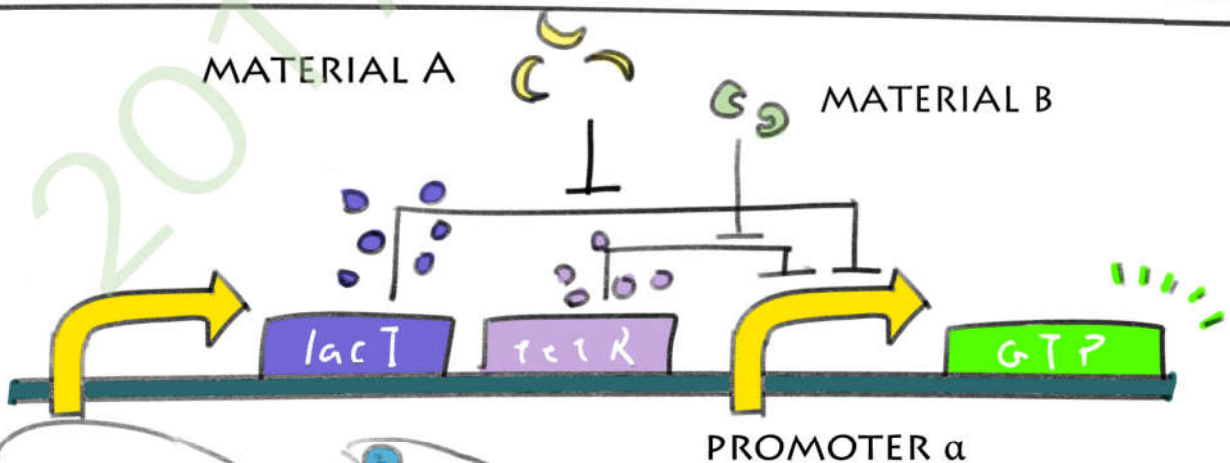


Tip: THE SYMBOL OF "PROMOTE" AND "REPRESS"



MATERIAL A

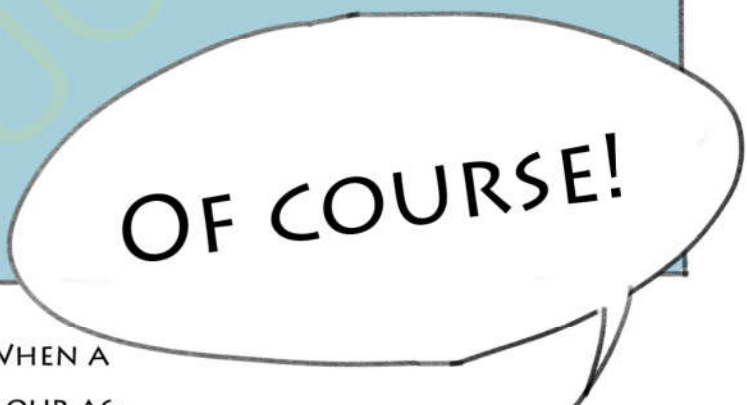
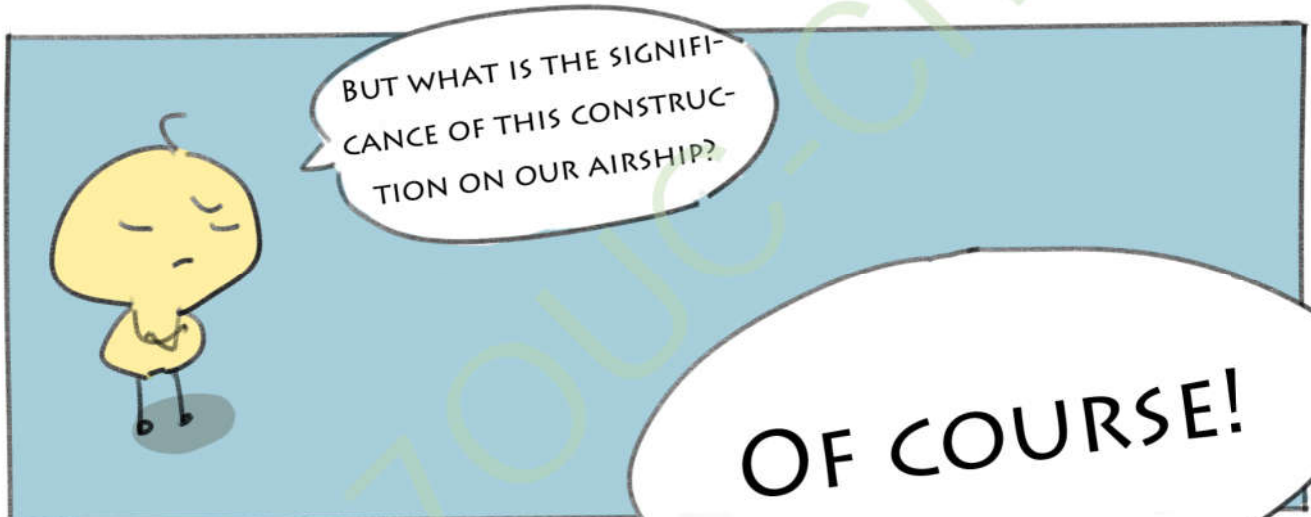
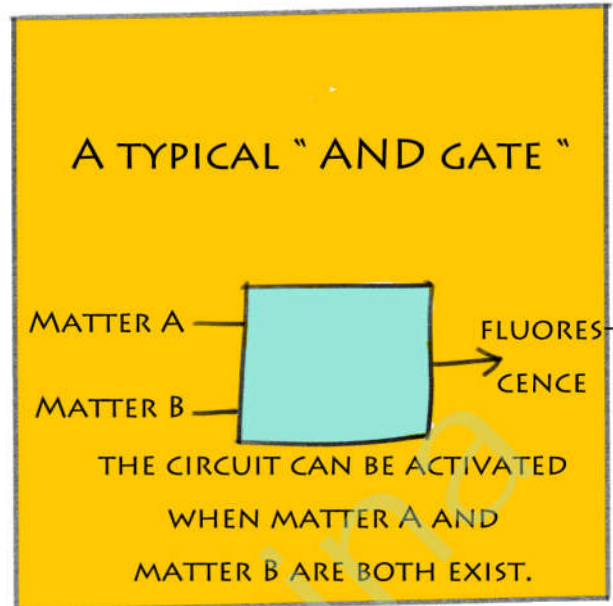
MATERIAL B



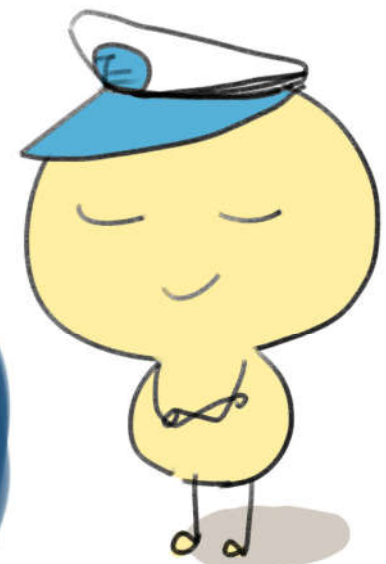
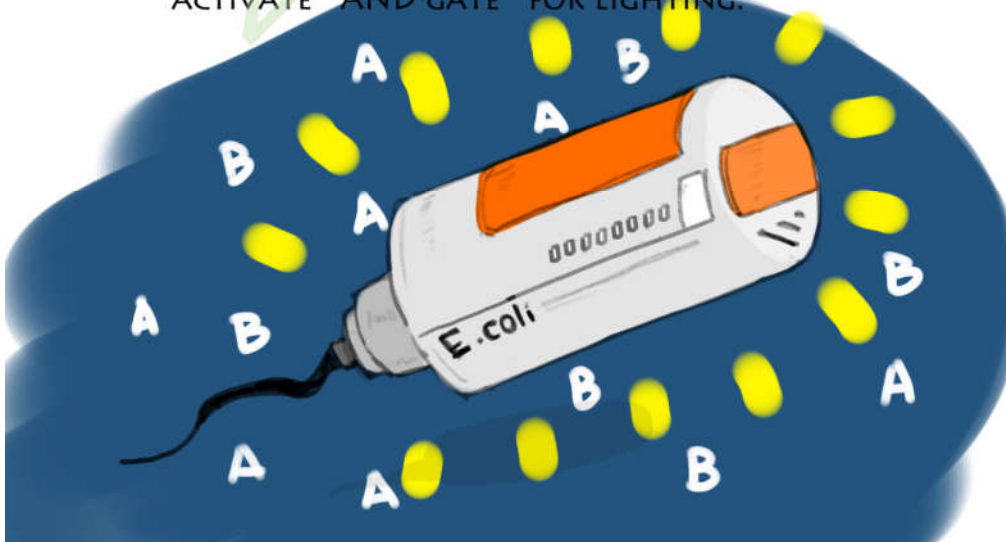
SO IT IS THE
FUNCTION OF
THIS CIRCUIT.

LACI, TETR PRODUCE THE REPRESSOR PROTEIN THAT CAN REPRESS APROMOTER, SO ONLY BOTH OF A AND B CAN ACTIVATE PROMOTER A, AND EXPRESS FLUORESCENCE.

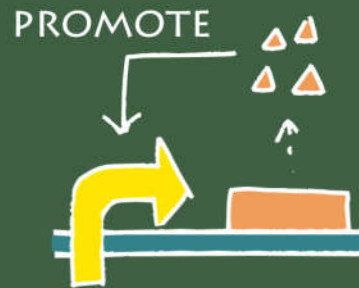
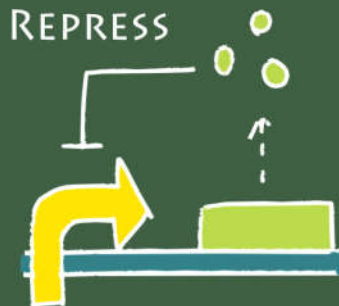
THE CONSTRUCTION THAT BOTH OF A AND B ARE EXIST FOR ACTIVATING, CALLED "AND GATE", IT IS A KIND OF LOGIC GATE. BESIDES, "NOR GATE" AND "NOT GATE". "AND GATE" IS THE SIMPLEST LOGIC GATES.



OUR SPACE SHIP IS AUTOMATED SHIP! WHEN A PARTICULAR REGION HAS A AND B, AND OUR ASSIGNMENT IS TO BE THERE FOR LIGHTING. ONCE OUR AIRSHIP CAN DETECT A AND B, WHICH CAN ACTIVATE "AND GATE" FOR LIGHTING.



THIS "AUTOMATED" CONSTRUCTION IS NOT JUST LOGIC GATES.

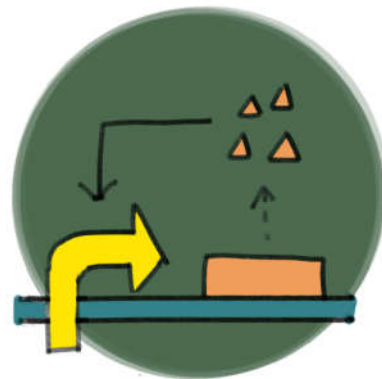


IT CALLED FEEDBACK LOOP,!
CAN YOU GUESS WHAT IMPACT IT HAS?



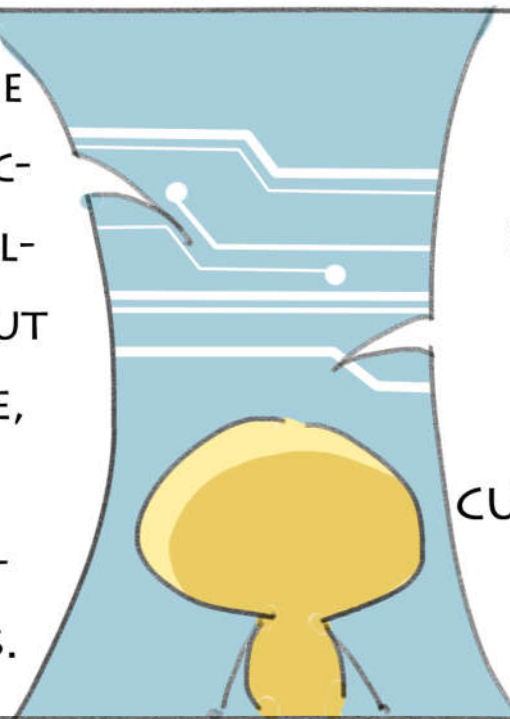
IT IS NEGATIVE FEEDBACK! WHEN THE MATTER EXPRESS TOO MUCH, IT CAN ACT ON THE PROMOTER TO TURN DOWN THE STRENGTH OF PROMOTER, MAKE THE LATTER EXPRESSION NOT OVER CAPACITY!

AND THAT IT IS A POSITIVE FEEDBACK, IT MAKES THE FRONT OF PROMOTER BE MORE AND MORE STRONGER, PRODUCING MORE PROTEINS.

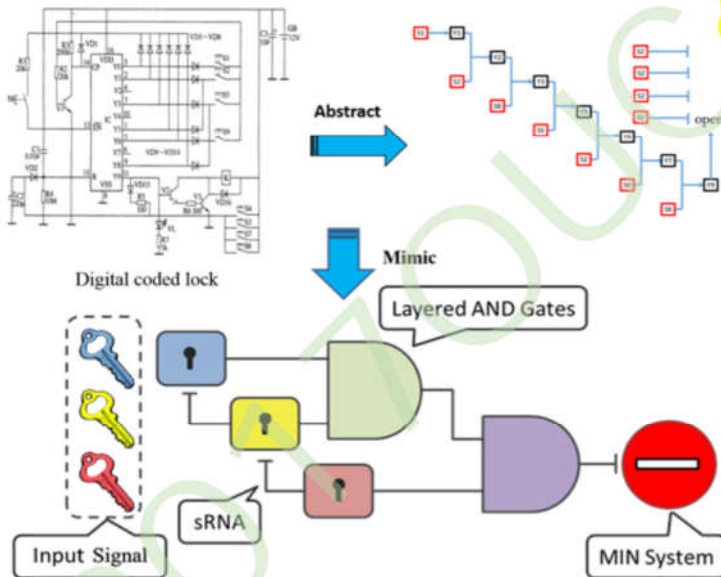


SOME OF THESE LOGICAL STRUCTURES HAVE ALREADY BEEN PUT INTO PRACTICE, BUT SOME OF THEM ARE UNKNOWN TO US.

HOWEVER, SIMULATING THE STRUCTURE OF ELECTRONIC CIRCUIT IN ORGANISM IS STILL FUNNY!



Tip:



THERE ARE MORE COMPLEX COMBINATIONS OF LOGIC GATES!

(THESE PICTURE ARE FROM 2014 BIT-CHINA IGEN TEAM.)

