NAME	Recognition Sequences	Sticky/blunt	Source
ECORI	G A A T C G C T T A A G CTTAA	Sticky end	Escherichia coli
Hind III	A A G C T T, A T T C G A A TTCGA	Blunt non sticky	Haemophilus influenze
Bam I	G G A T C C, G C C T A G G CCTAG	Sticky end	Bacillus amyloliquefans
ECORV	G A T A T C GAT C T A T A G CTA	Blunt nonsticky	Escherichia coli

Haemophilus influenciae
↑Genus ↑Species
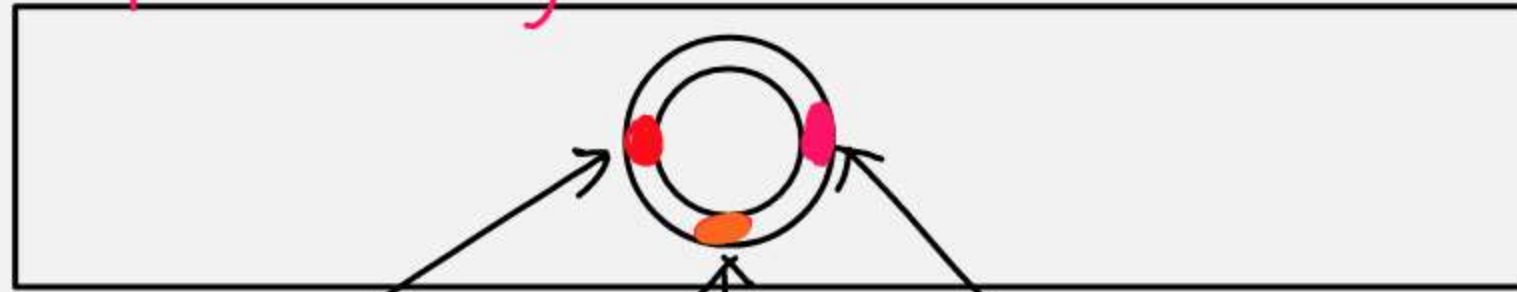
R.E
Hind-I

R.E (disc)
Hind-II

R.E
Hind-III

Hind-III

G T C↓G A C
C A G↑C T G

A↓A G C T T
T T C G A↑A

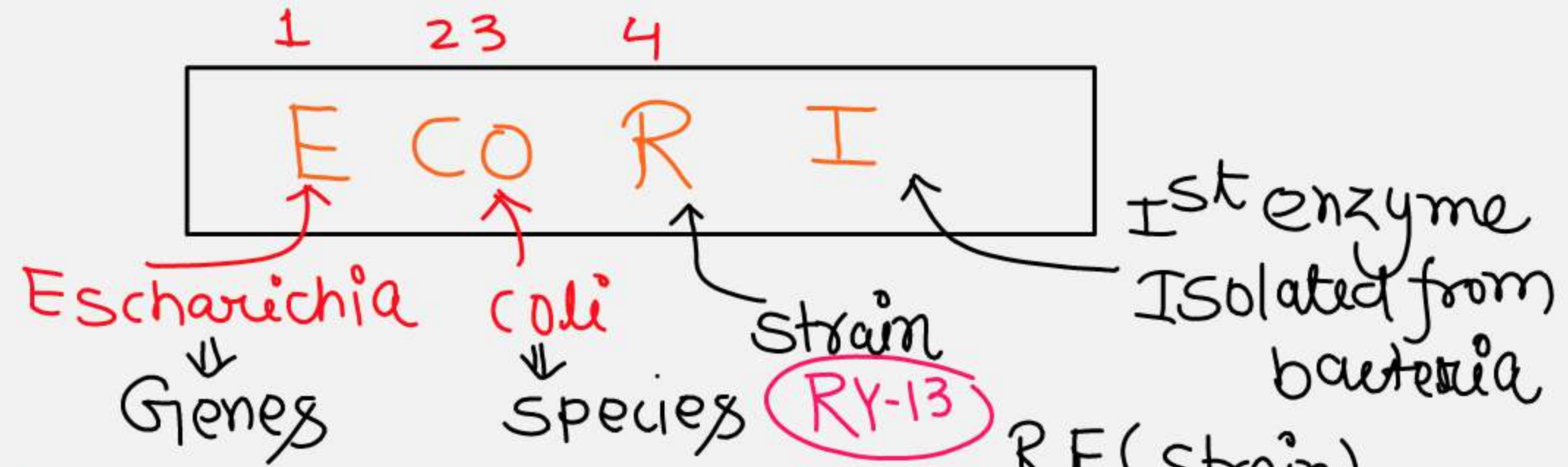GTC | GAC
CAG | CTG

A | AGCTT
TTCGA | A

Nomenclature of Restriction Endo.

1st letter ⇒ Genus of Bacteria (italic)

2 & 3 letter ⇒ Species of Bacteria

4th letter ⇒ Strain of Bacteria (optional)

Roman Numerical ⇒ Enzyme ⇒ Isolated from Bacteria

```
      1    2 3    4
   ┌──────────────────────────────┐
   │   E   CO    R     I           │
   └──────────────────────────────┘
```

E → Escherichia → Genes

CO → coli → Species

R → Strain RY-13

I → 1st enzyme Isolated from bacteria

eg ⇒ Haemophilus influenzae
       Genus   Species

RF (Strain)

RØ

strain. Roman numbers following the names indicate the order in which the enzymes were isolated from that strain of bacteria.

Restriction enzymes belong to a larger class of enzymes called **nucleases**. These are of two kinds; **exonucleases** and **endonucleases**. Exonucleases remove nucleotides from the ends of the DNA whereas, endonucleases make cuts at specific positions within the DNA.

Each restriction endonuclease functions by 'inspecting' the length of a DNA sequence. Once it finds its specific recognition sequence, it will bind to the DNA and cut each of the two strands of the double helix at specific points in their sugar-phosphate backbones (Figure 11.1). Each restriction endonuclease recognises a specific **palindromic nucleotide sequences** in the DNA.

[Handwritten annotation: Sma-I (Serratia marscences)

5' CCCGGG 3'

3' GGGCCC 5']

Action of Restriction enzyme

The enzyme cuts both DNA strands at the same site

EcoRI cuts the DNA between bases G and A only when the sequence GAATTC is present in the DNA

Vector DNA

Foreign DNA

G	A	A	T	T	C
C	T	T	A	A	G

G	A	A	T	T	C
C	T	T	A	A	G