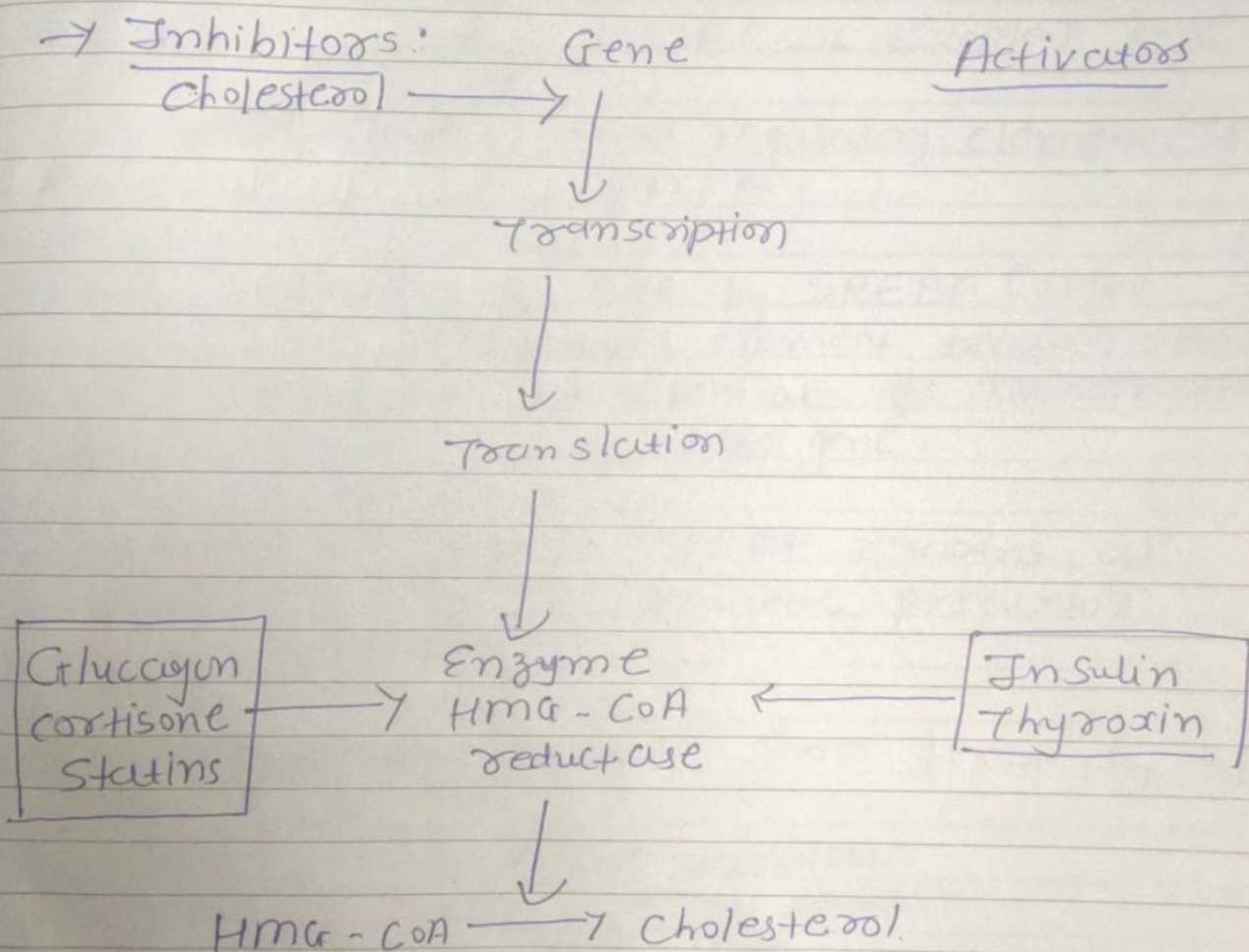


→ Regulation of cholesterol synthesis

(1) Regulation at transcription:

- long term regulation
- Regulation of transcription of gene for HMG-CoA reductase



→ Sufficient cholesterol in cell

↓
transcription of gene for HMG-CoA reductase suppressed

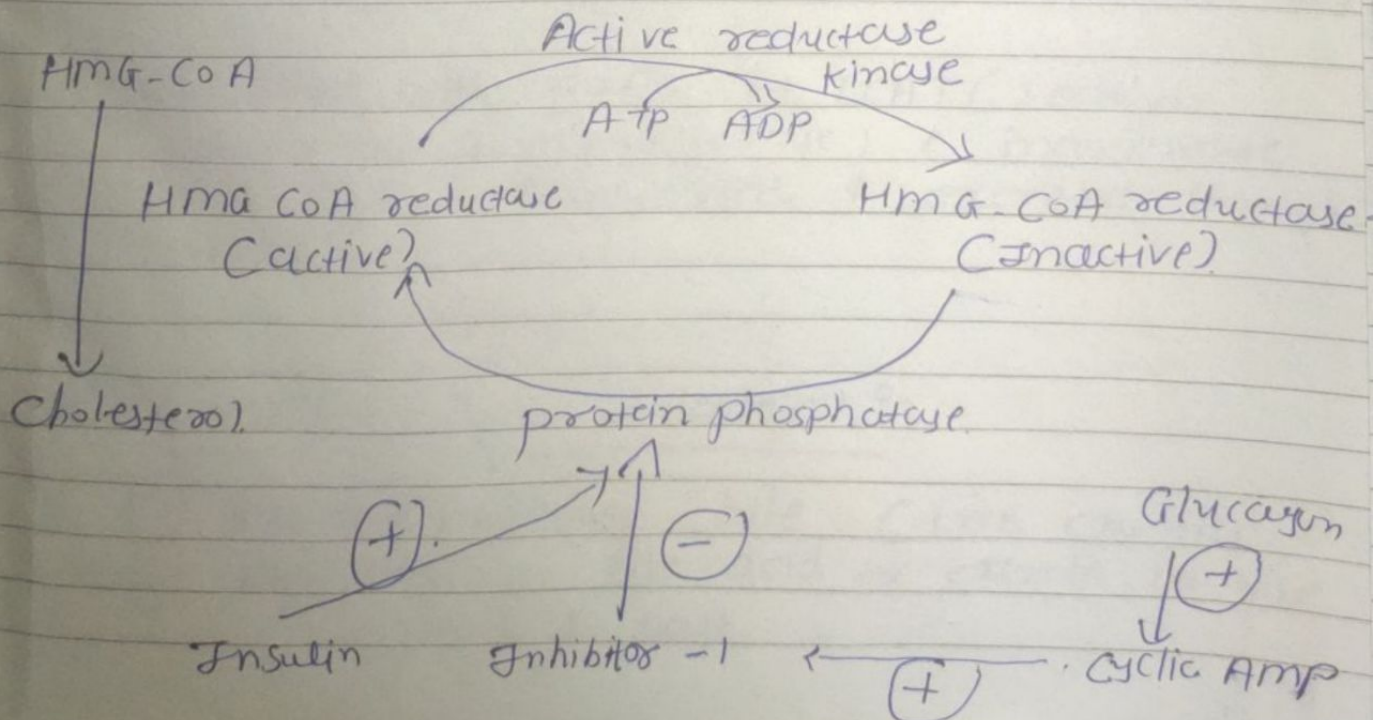
↓
Cellular synthesis of cholesterol is decreased

→ Cholesterol in diet low
↓
Synthesis increased.

(2) Cholesterol regulate
↓
Expression of HMG-CoA reductase gene & LDLR (LDL Receptor) gene
↓
In DNA - sterol regulatory element (SRE) present.
↓
Binding of SRE by SREBP (sterol regulatory element binding protein) is essential for transcription of these gene.

- Cholesterol high - SREBP remains as inactive precursor.

(3) Covalent modification: Short term, by enzyme.



(4) Drugs:

e.g. Lovastatin (a statin group of drug)



Competitive inhibitors of HMG-CoA reductase.



↓ cholesterol level in blood.