



Cell & Molecular Biology Notes

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lec 6

Cytology

~~Sakabeel Jaw.~~

V-Type uses ATP, but doesn't apply the phosphorylated intermediate.

Not primary → Active transport → doesn't use ATP

→ uses the light energy → bacteria →

uses bacteriorhodopsin (light driven proton pump)



primary transport → coupled with energy

We can use the gradient of one molecule to drive the transport of another molecule against the gradient.

Ion gradient → form of energy

Like electron transport chain which forms H^+ gradient to synthesize ATP (ATP synthase)

H^+ gradient → Force → power → work

Remember the physics in Al-Tawjiki 😊

Apical plasma membrane \rightarrow the glucose enters the epithelial cell actively

Basal plasma membrane \rightarrow the glucose leaves the epithelial cell by diffusion. (using GLUT2)

We use the gradient of Na^+ to transport Glucose against gradients

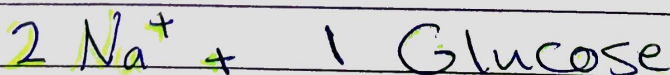
To create the Na^+ gradient we use $\text{Na}^+ - \text{K}^+$ pumps when the Na^+ flows down the gradient to drive the co-transport of glucose against gradient.

The transport of Na^+ and glucose is in the same direction (simple)

* شرح النقل من عيني "ترجمة لخصي الدكتور بشار د عام"
آيونات الصوديوم Na^+ تتحرك خارج الخلية بينما البوتاسيوم K^+ بالداخل بسبب نشاط $\text{Na}^+ - \text{K}^+$ pump الذي ينقل Na^+ آيونات Na^+ إلى الخارج مقابل K^+ إلى الداخل
لما تخرج آيونات Na^+ إلى الداخل باتجاه التركيز يتسبب انتقال الجلوكوز إلى داخل الخلية.

Secondary transport

We use ATP to create Na^+ gradient, but we don't use ATP directly to drive the glucose we use the Na^+ gradient.



Glucose leaves the cells from the basal membrane (Glucose transporter GLUT2 facilitated diffusion → with gradient)

Secondary active transport

uses ATP to create gradient

or anything else → then we use

the gradient or anything else to

drive the transporting of another molecule

against the gradient.

Simple

In the same direction

Antiporters or exchangers

In the opposite directions

maintaining pH

ببذل H^+ و بطلع Na^+

20,000-fold means

لو كان واحد بيق الكلية و عشرين ألفا جوا
يقدر يبذل هاد الواحد