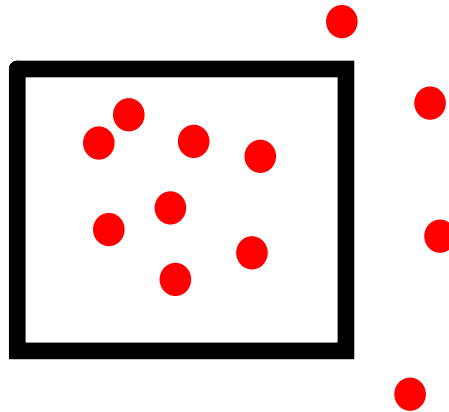


# Chapter 4-2

**Sometimes  
things \_\_\_\_\_  
to transported  
into the cell  
which might be  
\_\_\_\_\_ the  
concentration  
gradient.**



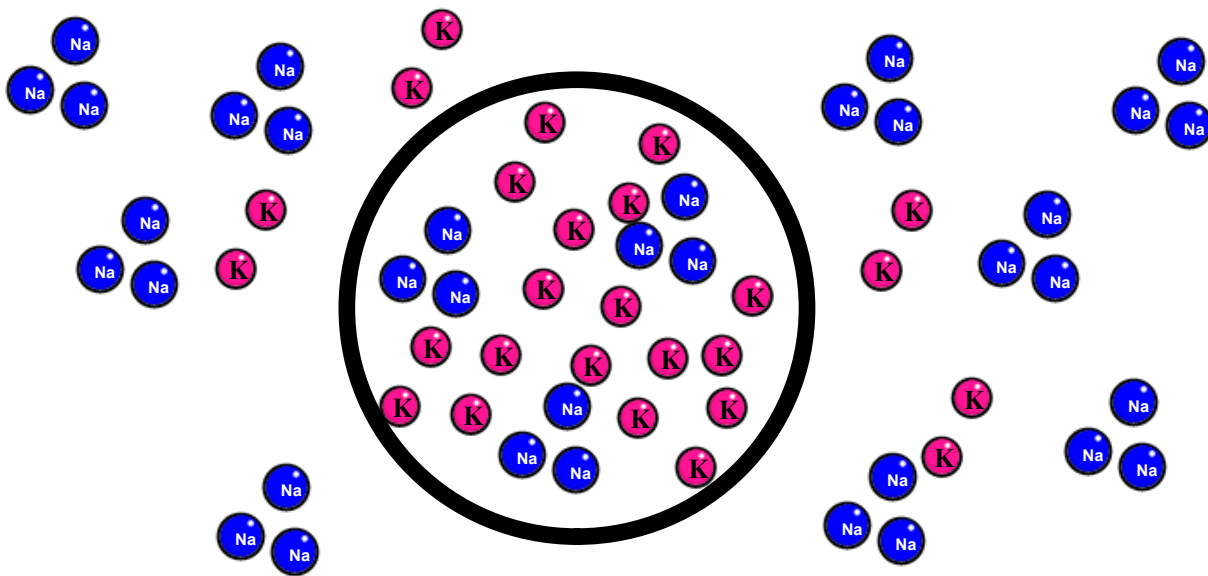
**Transporting against  
the concentration  
gradient is called**

\_\_\_\_\_  
\_\_\_\_\_.

**This requires  
the cell to  
\_\_\_\_\_ ATP  
(energy)**



## Sodium-Potassium Pump



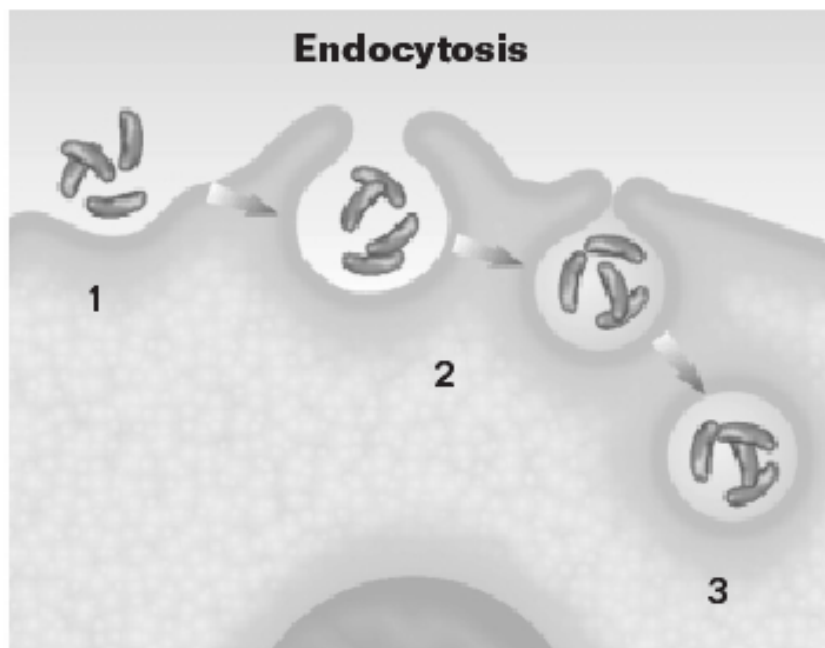
**The sodium-potassium pump does two things:**

**1. Prevents sodium from accumulating inside the cell. Sodium \_\_\_\_\_ into the cell.**

**2. Maintains the sodium and \_\_\_\_\_ gradients.**

**Many substances are too large to be transported by \_\_\_\_\_.**

**Endocytosis-**  
**movement of a**  
**\_\_\_\_\_ into a**  
**cell by a vesicle.**

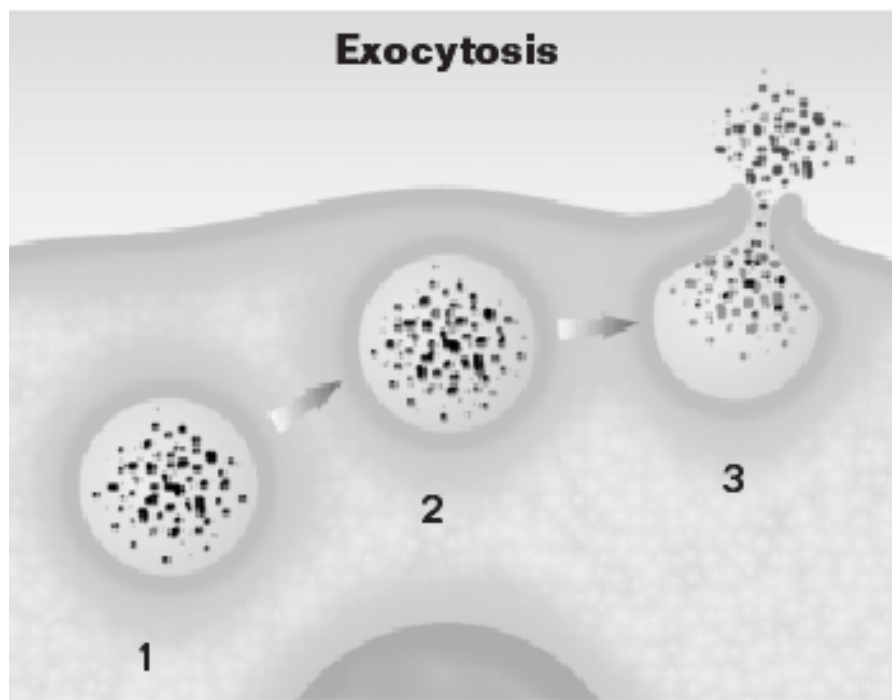


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**Exocytosis-**

**\_\_\_\_\_**  
**of a substance**  
**by a vesicle to**  
**the \_\_\_\_\_ of**  
**a cell**



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# **Receptor proteins do three things**

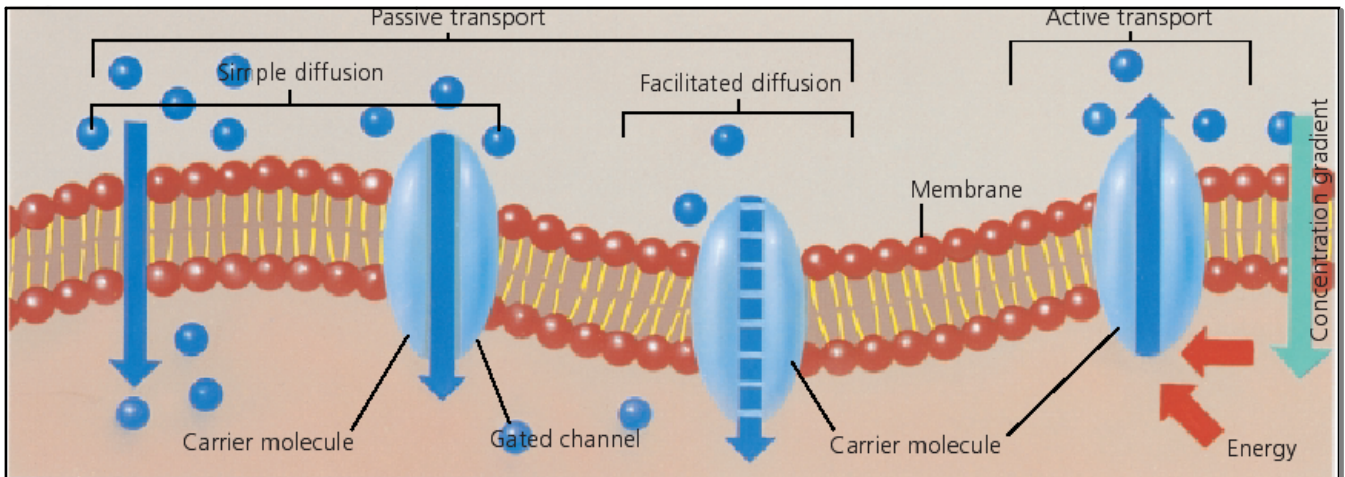
**1. Can change**

---

**making an ion  
channel stay  
open.**

**2. It can make \_\_\_\_\_  
messengers that act as a  
signal \_\_\_\_\_ in the  
cytoplasm.**

**3. It can  
activate  
enzymes in cells  
or \_\_\_\_\_  
other chemical  
reactions.**



**BIO**SOURCES  
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Video

