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# General Amino Acids Transport Systems

Produced for the CRC for Premium Quality Wool undergraduate program by;  
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# How do amino acids enter cells?

- transport mechanisms:
  - passive
    - biochemical
      - concentration gradient
      - for neutral amino acids
    - electrochemical
      - membrane potential
      - for charged amino acids
  - active

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# Active transport in mammalian cells

- Occurs against a concentration gradient
  - ATP is required to provide energy for the transport
- Requires carrier transport proteins
- 3 - step process
  - binding of the solute to one side of the membrane
  - translocation across the membrane
  - release at the internal surface
- Amino acids mainly enter cells by active transport systems

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# Carrier transport systems in mammalian cells

- **uniport**
  - transports one molecule down a gradient
- **symport and antiport**
  - movement of one molecule against the concentration gradient, driven by movement of ions down an electrochemical gradient
- **ATPase pump creates a gradient**

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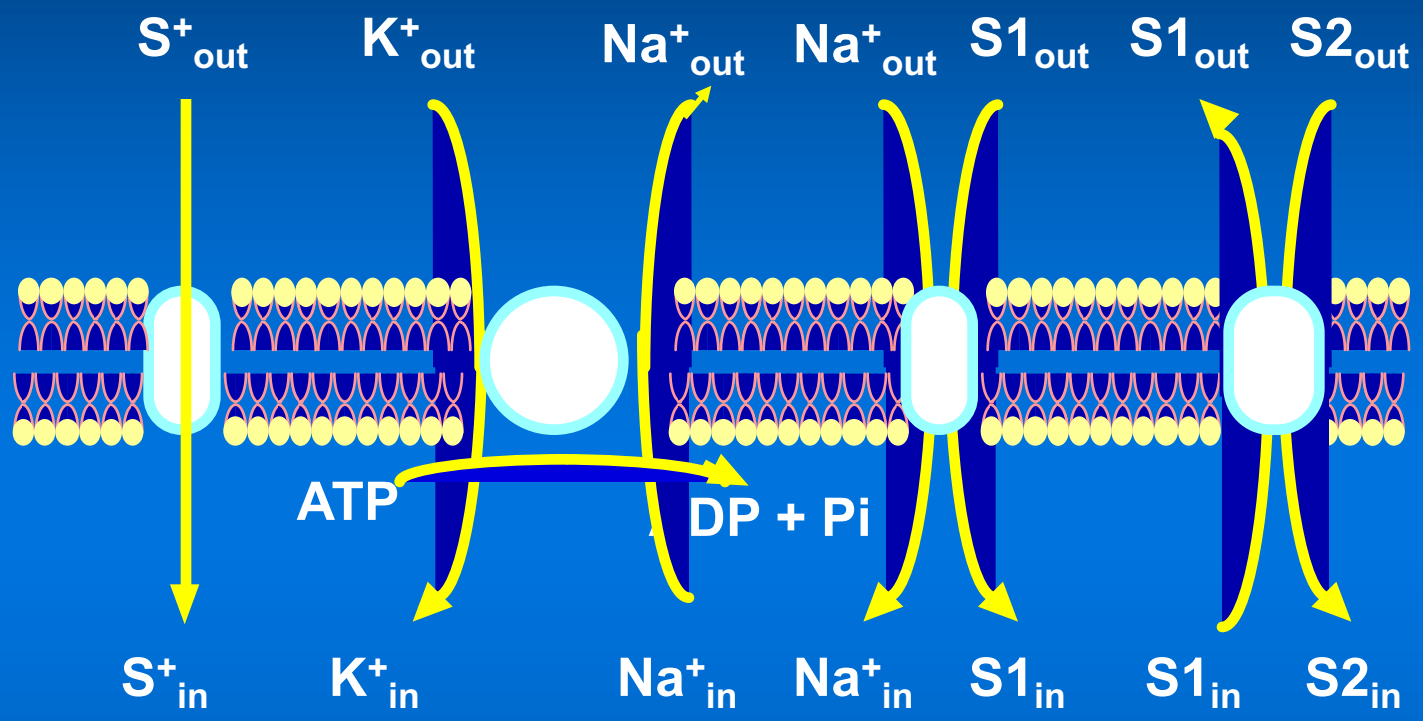
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# Movements of substances



**Facilitated diffusion**

**Primary active transport**

**Secondary active transport**

**Tertiary active transport**