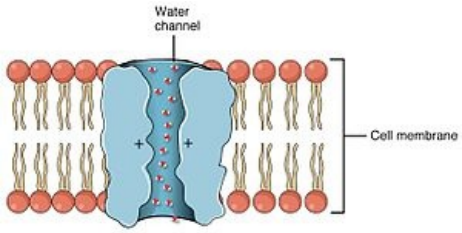
Aquaporin

Aqvaporin is an integral membrane protein regulating water flow across the membrane.

Function mechanism



Scheme of aquaporin

Regardless of the temperature, water passes through the pores in membrane integral proteins - porins. These water channels are **selective for the passage of water**, neither solutes nor small molecules pass through them (urea has its own specific channel).

Some of these channels are controlled chemically, for others the regulation is not yet known.

High specificity is achieved with a channel diameter of 0.2 nm (not even H^+, OH^- does not pass through). Water passes through a continuous stream of $2\text{-}4.10^9$ molecules per second.

Structure

- Molecular weight 30 kDa;
- 6 hydrophobic sections (domains);
- molecules form tetramers (water passes through each molecule separately);
- 10 types of aquaporin H (AQP0–AQP9);

Occurrence

Localization	A type of aqvaporin
Erythrocytes	AQP1
Distal segment of nephron	AQP2,3
Plexus choroideus	APQ1
Lung	APQ4
Salivary and lacrimal glands	APQ5

Their permeability is in many cases controlled by vasopressin (AQP2).

Links

External links

- Akvaporin (Czech Wikipedie)
- Aquaporin (English Wikipedie)

References

- LANGMEIER, Miloš. *Základy lékařské fyziologie.* 1. edition. Praha : Grada Publishing, a.s, 2009. 320 pp. ISBN 978-80-247-2526-0.