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# HUJAYRA MEMBRANASINING STRUKTURASI VA FUNKSIYASI

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## **REJA:**

- 1. Biologik membranalarning xususiyatlari.**
  - 2. Membranali lipidlarning vazifalari.**
  - 3. Membranalar bo'ylab moddalarni tashish.**
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**Dolzarbligi:** Muhimligi: Hujayralarning bir-biri bilan va atrof-muhit (gormonlar, dorilar) bilan o'zaro ta'sir qilish mexanizmlarini hujayra membranalarining tuzilishi va faoliyati haqida asosiy bilimlarsiz o'rganish mumkin emas.

**Maqsad:** Biologik membranalarning tuzilishi va ularning hujayradagi rolini o'rganish.

## Biologik membranalarining xususiyatlari

Biologik membranalar - hujayralar va hujayra ichidagi organellalarni bog'laydigan funktsional faol sirt tuzilmalarining umumiy nomi.



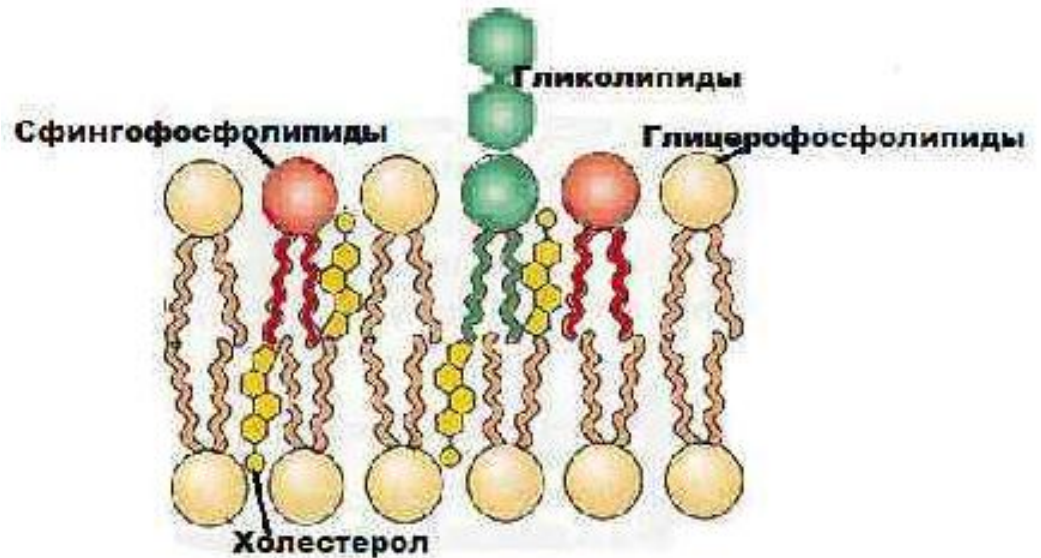
# Membrana lipidlari

## 1. Fosfolipidlar:

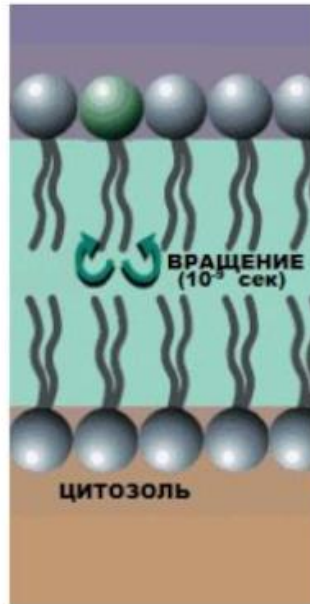
- ❖ Glitserfosfolipidlar
- ❖ Sfingofosfolipidlar

## 2. Glikolipidlar

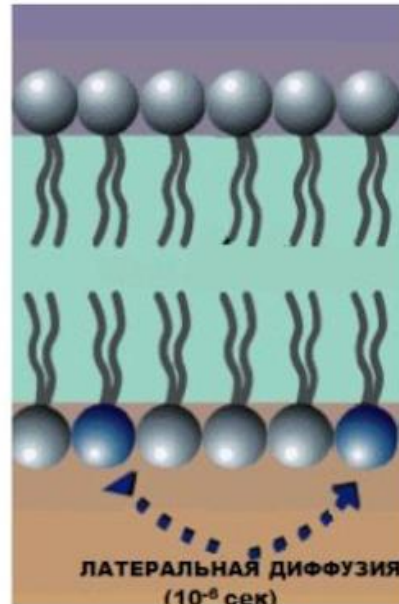
## 3. Xolesterin



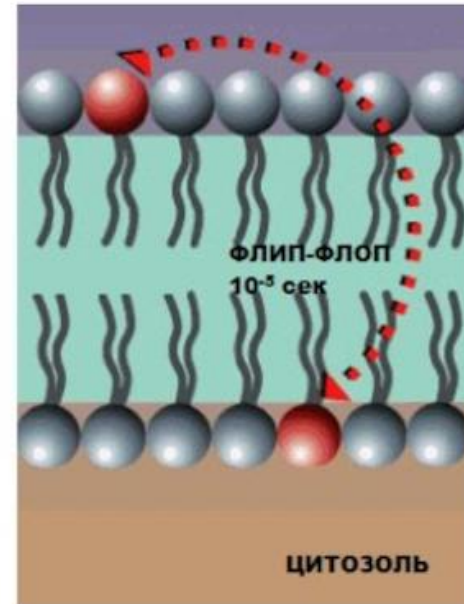
# Lipid molekularining harakat turlari



Aylanma diffuziya



Lateral diffuziya



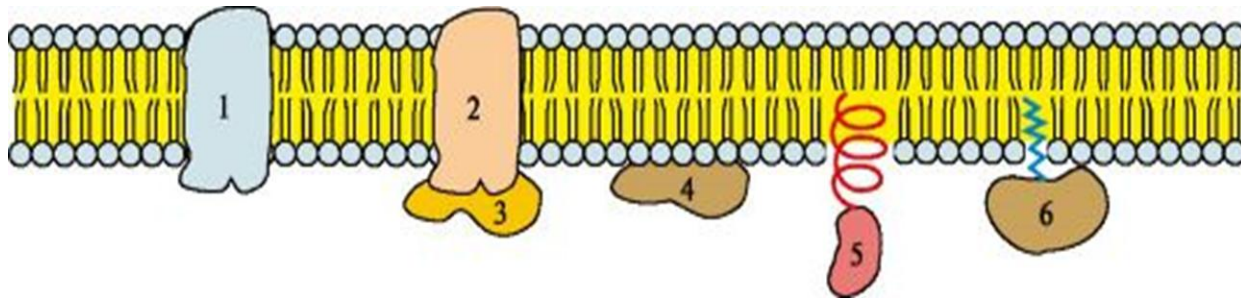
Flip-flop  
(кувырок)

## Membranali lipidlarning vazifalari

- ❖ lipid ikki qavatini hosil qiladi - membranalarning strukturaviy asosi;
- ❖ membrana oqsillarining ishlashi uchun zarur bo'lgan muhitni ta'minlash;
- ❖ ferment faolligini tartibga solishda ishtirok etish;
- ❖ sirt oqsillari uchun "langar" bo'lib xizmat qiladi;
- ❖ gormonal signallarni uzatishda ishtirok etish.

## Membranli oqsillari

- ❖ Joylashuviga ko'ra membrana oqsillari integral (transmembran) va periferik (sirt) ga bo'linadi.
- ❖ 1, 2 - integral oqsillar; 3, 4, 5, 6 - sirt oqsillari.



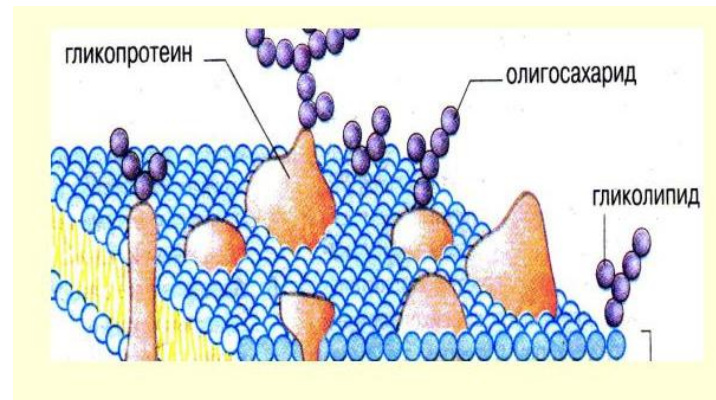


## Membranli oqsillarining vazifalari

- ❖ moddalarni hujayra ichiga va tashqarisiga tanlab tashish;
- ❖ gormonal signallarni uzatish;
- ❖ endositoz va ekzotsitozda ishtirok etadigan "chegaralangan chuqurliklar" shakllanishi;
- ❖ immunologik reaktsiyalar;
- ❖ fermentativ reaktsiyalar;
- ❖ to'qimalar va organlarning shakllanishini ta'minlaydigan hujayralararo aloqalarni tashkil etish.

## Membranali uglevodlarning vazifalari

- hujayralararo o'zaro ta'sirni nazorat qilish;
- hujayraning immunitet holatini saqlab turish;
- biologik membranada oqsil molekulalarining barqarorligini ta'minlash.



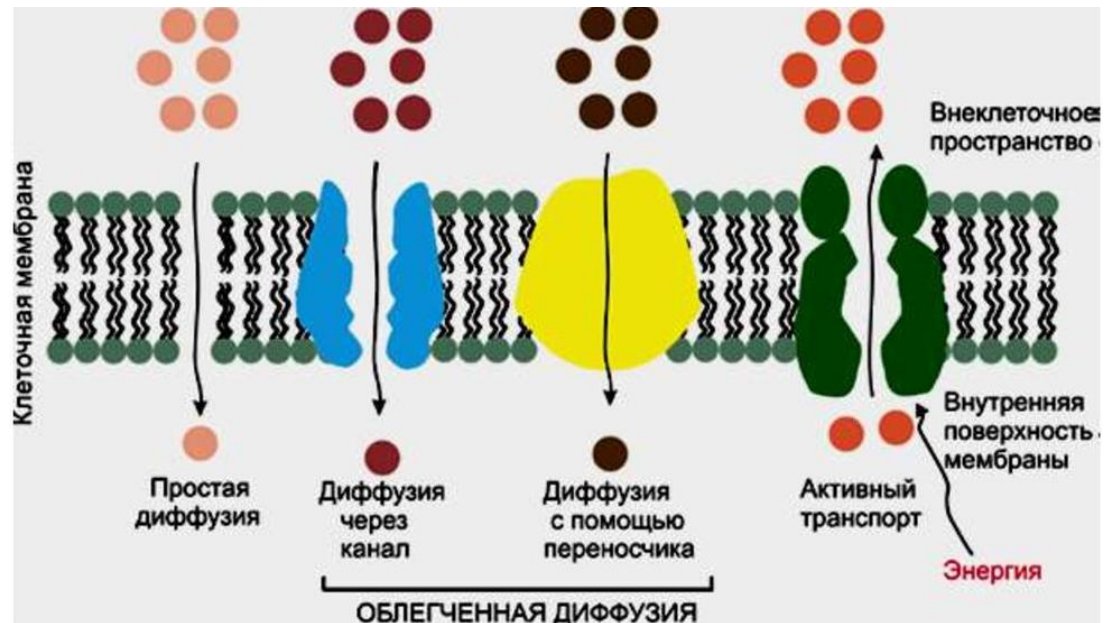
# Biologik membranalarning vazifalari

- 1. To'siq
- 2. Hujayralarni belgilash
- 3. Matritsa
- 4. Mexanik
- 5. Energiya
- 6. Retseptor
- 7. Enzimatik
- 8. Biopotentsiallarni hosil qilish va o'tkazishni amalga oshirish
- 9. Transport

## Membranalar bo'ylab moddalarni tashish

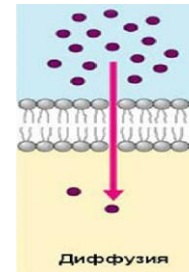
Kanallar yoki tashuvchi oqsillar orqali ionlar yoki organik molekulalarni tashish sodir bo'lishi mumkin

- ❖ kontsentratsiya gradienti bo'ylab - passiv transport
- ❖ kontsentratsiya gradientiga qarshi - faol transport.



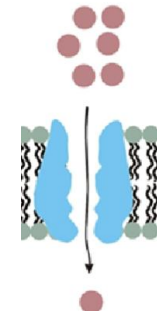
## Passiv transport turlari

❖ Ikki qavatli lipidlar orqali moddalarni tashish (oddiy diffuziya) Suvning membranalar orqali tarqalishi osmoz deb ataladi.



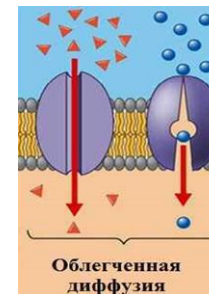
O<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, этанол, стероидные гормоны

❖ Membran kanallari orqali moddalarni tashish



Ca<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup>

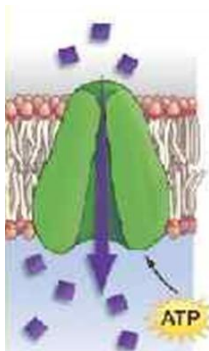
❖ Maxsus transport oqsillari orqali moddalarni tashish (esonlashtirilgan diffuziya)



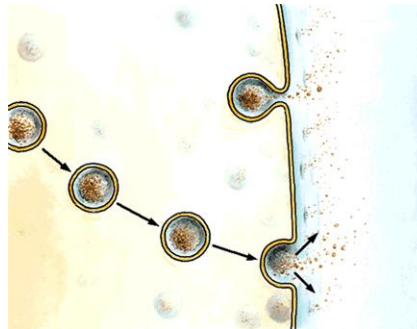
Ионы, аминокислоты, сахара, нуклеотиды

# Faol transport turlari

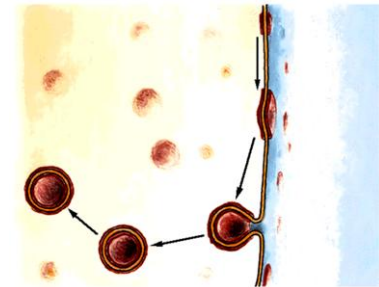
## Natriy-kaliyli nasos



## Endositoz (fagotsitoz va pinotsitoz)



## Ekzotsitoz



# Xulosa

- ❖ Biologik membranalar sitoplazma va hujayraning aksariyat organellalarini cheklovchi bir necha molekulyar qatlamlardan iborat funktsional faol sirt tuzilmalari bo'lib, ular kanalchalar, burmalar va yopiq joylardan iborat yagona hujayra ichidagi tizimni hosil qiladi.
- ❖ Biologik membranalarning asosiy komponentlari lipidlar va oqsillar, uglevodlar va suv mavjud.
- ❖ Biologik membranalar to'siq vazifasini bajaradi, moddalarni tashiydi, energiyani o'zgartiradi va saqlaydi. Ular bioelektrik potentsiallarni yaratishga va qo'zg'alishni o'tkazishga, hujayralarni qabul qilish va hujayralararo o'zaro ta'sirlarni amalga oshirishga, hujayra metabolizmida ishtirok etishga qodir.

# Adabiyotlar ro'yxati

1. [https://ru.wikipedia.org/wiki/Клеточная\\_мембрана#Основные\\_сведения](https://ru.wikipedia.org/wiki/Клеточная_мембрана#Основные_сведения)
2. [https://studopedia.ru/9\\_189522\\_stroenie-i-funktsii-biologicheskikh-membran.html](https://studopedia.ru/9_189522_stroenie-i-funktsii-biologicheskikh-membran.html)





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**E'TIBORINGIZ  
UCHUN RAXMAT**

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