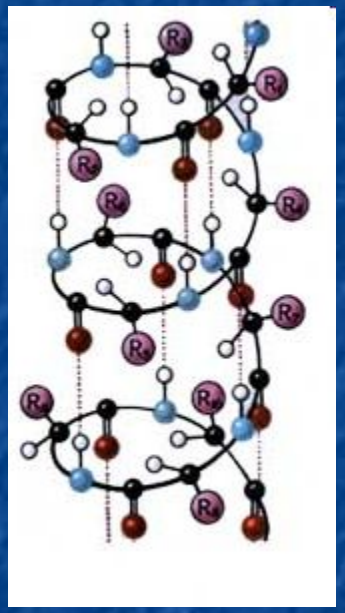
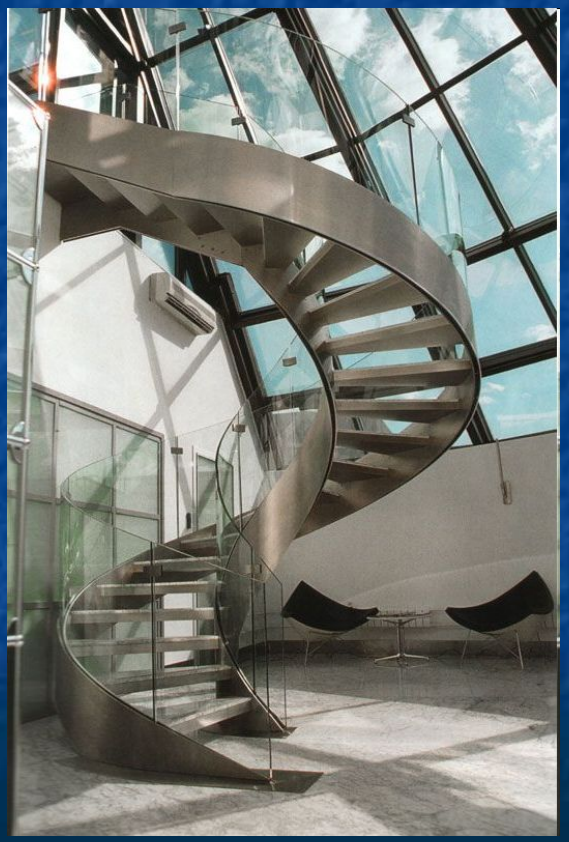
# Aminokislota va oqsillar.

## Tuzilishi va xossalari.

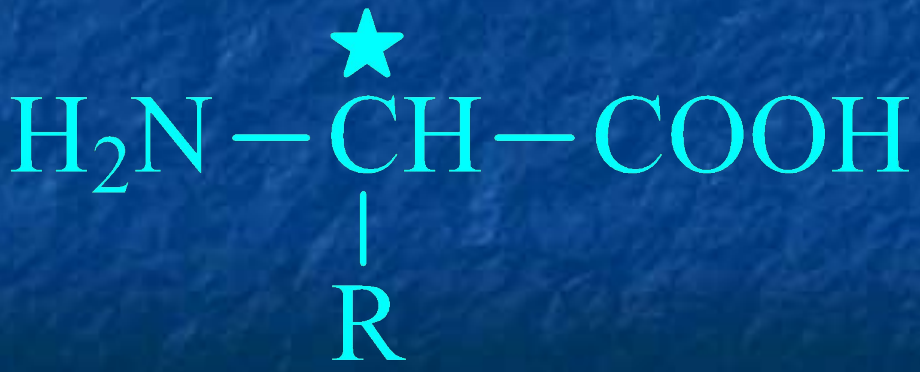


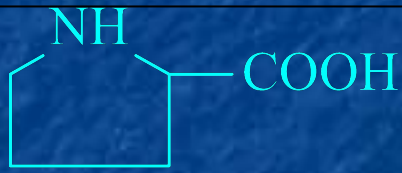


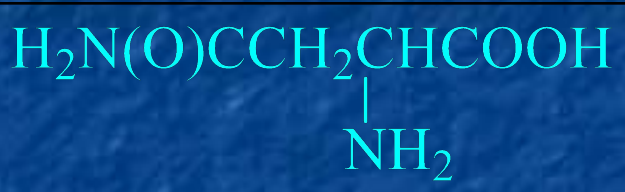
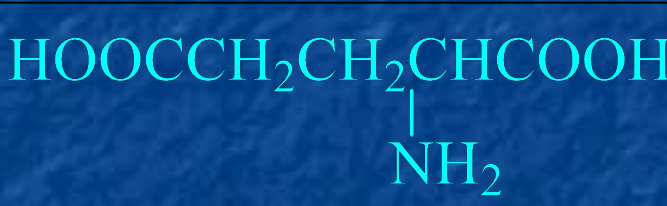
**Spiral makromolekulali oqsillar, nuklein kislotalar va ko'plab sohalarda polisaxaridlar topilgan hatto me'morchilikda.**

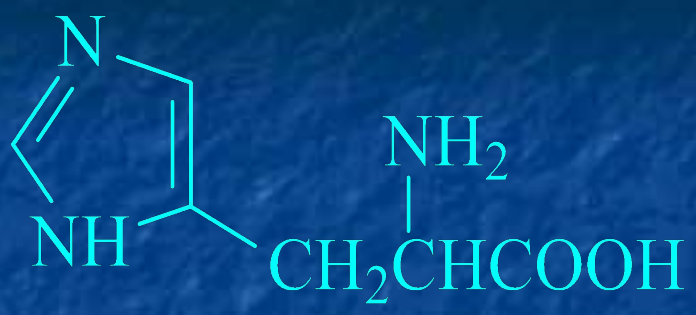
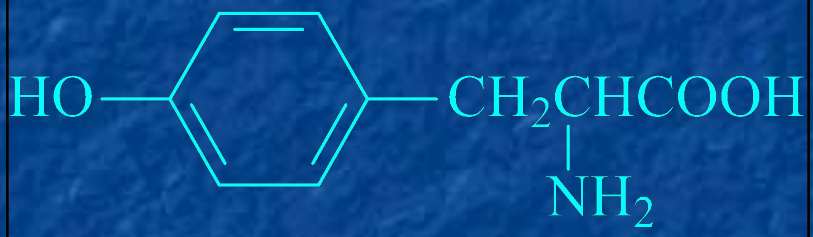
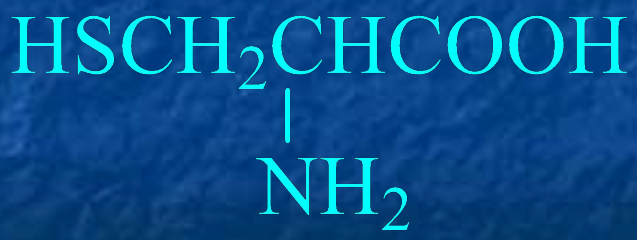
# Aminokislotalar

*Kislota xossasini ham olmaydigan va aminoguruh xossasini ham ham o'z ichiga olgan bu aralashma, bu amino kislotalar bo'ladi.*



| Nomi | Qisqartmasi | Struktura formulasi | (pH) |
|---|---|---|---|
| Глицин | gly | $H_2NCH_2COOH$ | 5.97 |
| Аланин | ala | $CH_3CH(NH_2)COOH$ | 6.02 |
| Валин | val | $(CH_3)_2CHCH(NH_2)COOH$ | 5.97 |
| Лейцин | leu | $(CH_3)_2CHCH_2CH(NH_2)COOH$ | 5.98 |
| Пролин | pro |  | 6.10 |
| Фенилаланин | phe | $C_6H_5CH_2CH(NH_2)COOH$ | 5.88 |
| Триптофан | try | $C_6H_5CH_2CH(NH_2)COOH$ | 5.88 |

| Nomi | Qisqartmasi | Struktura formulasi | (pH) |
|---|---|---|---|
| Аспарагин | asn |  | 5.41 |
| Глутаминовая кислота | glu |  | 3.22 |
| Лизин | lys |  | 9.74 |
| Аргинин | arg | | 10.76 |

| Nomi | Qisqartmasi | Struktura formulasi | (pH) |
|---|---|---|---|
| Гистидин | his |  | 7.58 |
| Тирозин | tyr |  | 5.65 |
| Цистеин | cySH |  | 5.02 |

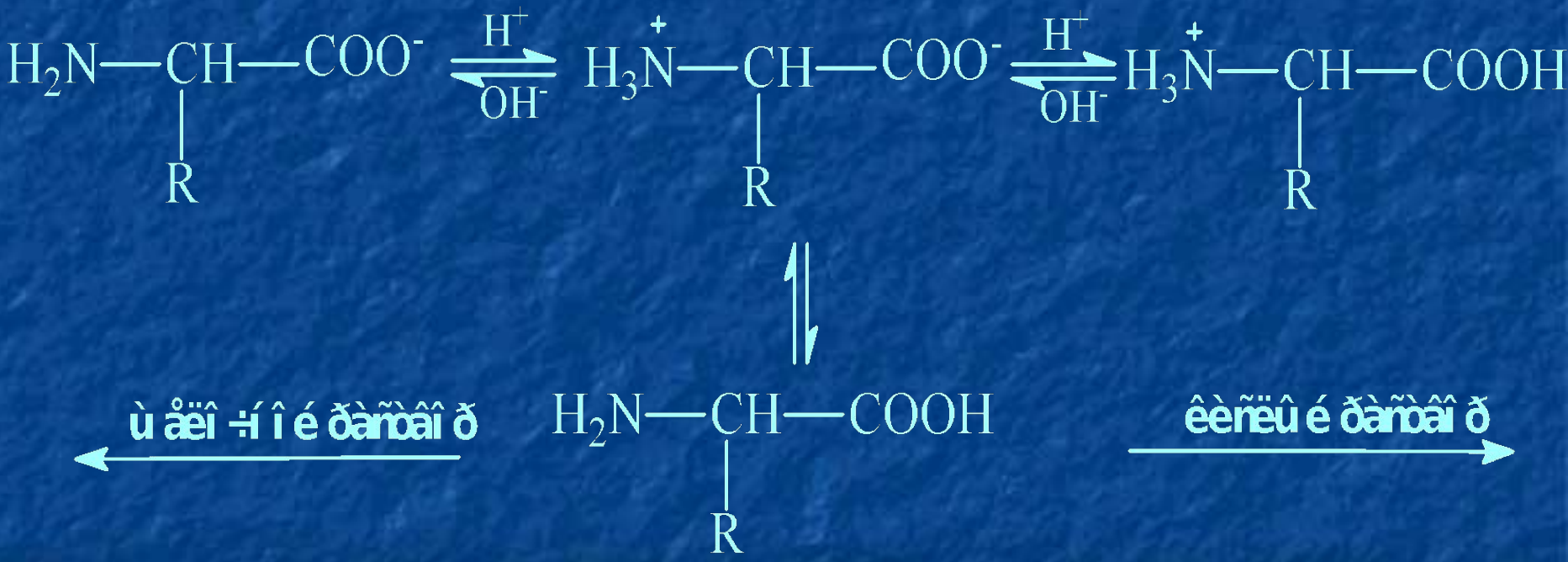
# Almashinmaydigan aminokislotalar

Oqsillar tarkibida uchraydigan aminokislotalar esa ularning fermenta-tiv o‘zgarishi natijasida hosil bo‘ladi. Ayrim aminokislotalar hayvon va odam organizmidan sintezlanmaydi. Bu almashinmaydigan aminokislotalardir. Odam organizmi uchun 8 (triptofan, fenilalanin, metio-nin, lizin, valin, treonin, izoleysin va leysin) almashinmaydigan aminokislotalar bor.O‘simliklar o‘zi uchun zarur bo‘lgan barcha azotli birikmalarni sintezlash qobiliyatiga ega. aminokislotalar sintezi jarayonida ammiakli azot organik birikmalarga aylanadi.

# Almashinmaydigan aminokislotalar

O‘simliklarda hosil bo‘lgan aminokislotalar uzluksiz almashinib turadi. Ular asosan, oqsillar sintezi uchun sarfla-nadi, shuningdek, dekarboksillanishi, azot asoslari va boshqa birikmalar sintezi uchun ishlatilishi, aminogruppani aj-ratib yuborishi, to‘liq oksidlanishi va organizm uchun energiya manbai bo‘lib xizmat qilishi mumkin.

# Kislotali xossalarini namoyon qiladi



# Asosiy xossalari.

Ionlashmagan aminokislota holati

Ion holatdagi Svettir ioni(bipolyar ion holat)

# Aminokislotalarning klassifikatsiyasi

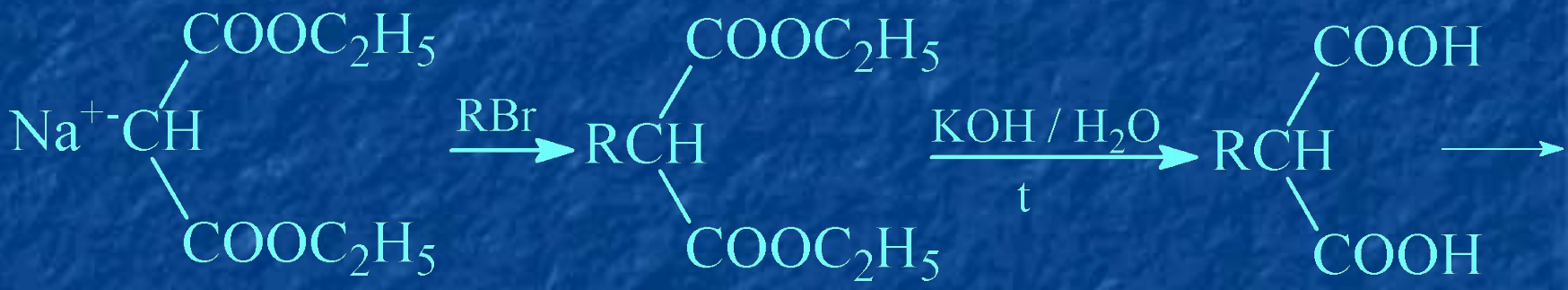
Kimyoviy tuzulishi bo‘yicha aminokislotalar aminkarbon kislotalar bo‘lib, ular tarkibida karboksil — COOH va amino — NH2 guruhlari mavjud. Amino gruppa hamda proteinogen aminokislotalarda a-uglerod atomida joylashganligidan, a-aminokislotalar qatorini tashkil qiladilar. Peptidlar Kimyoviy tuzulishi bo‘yicha aminokislotalar aminkarbon kislotalar bo‘lib, ular tarkibida karboksil — COOH va amino — NH2 guruhlari mavjud. Amino gruppa hamda proteinogen aminokislotalarda a-uglerod atomida joylashganligidan, a-aminokislotalar qatorini tashkil qiladilar. Peptidlar va,

# Aminokilotalarning olinish usullari

*aminlangan α- galogen birikmalardan*

# Aminokislotalarning olinish usullari

*Malon kislotaning bromlanishi natijasida.*

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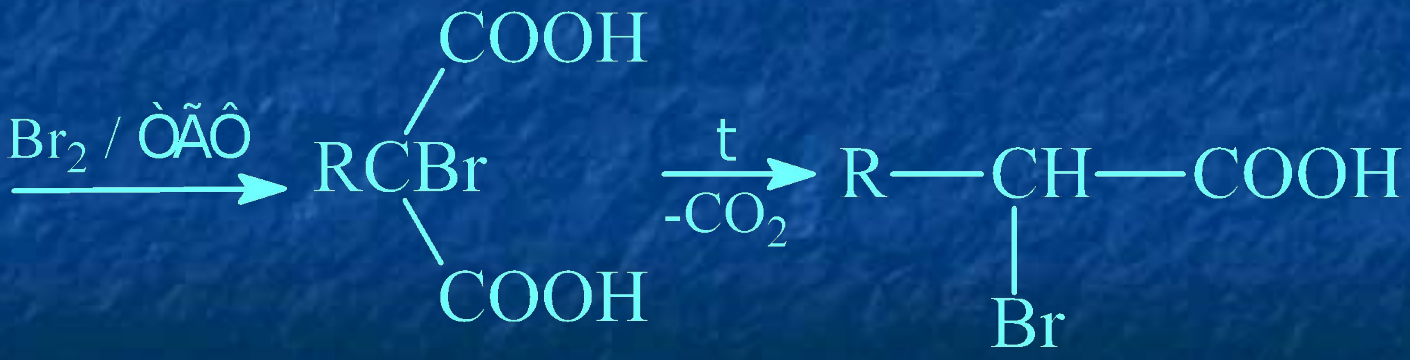
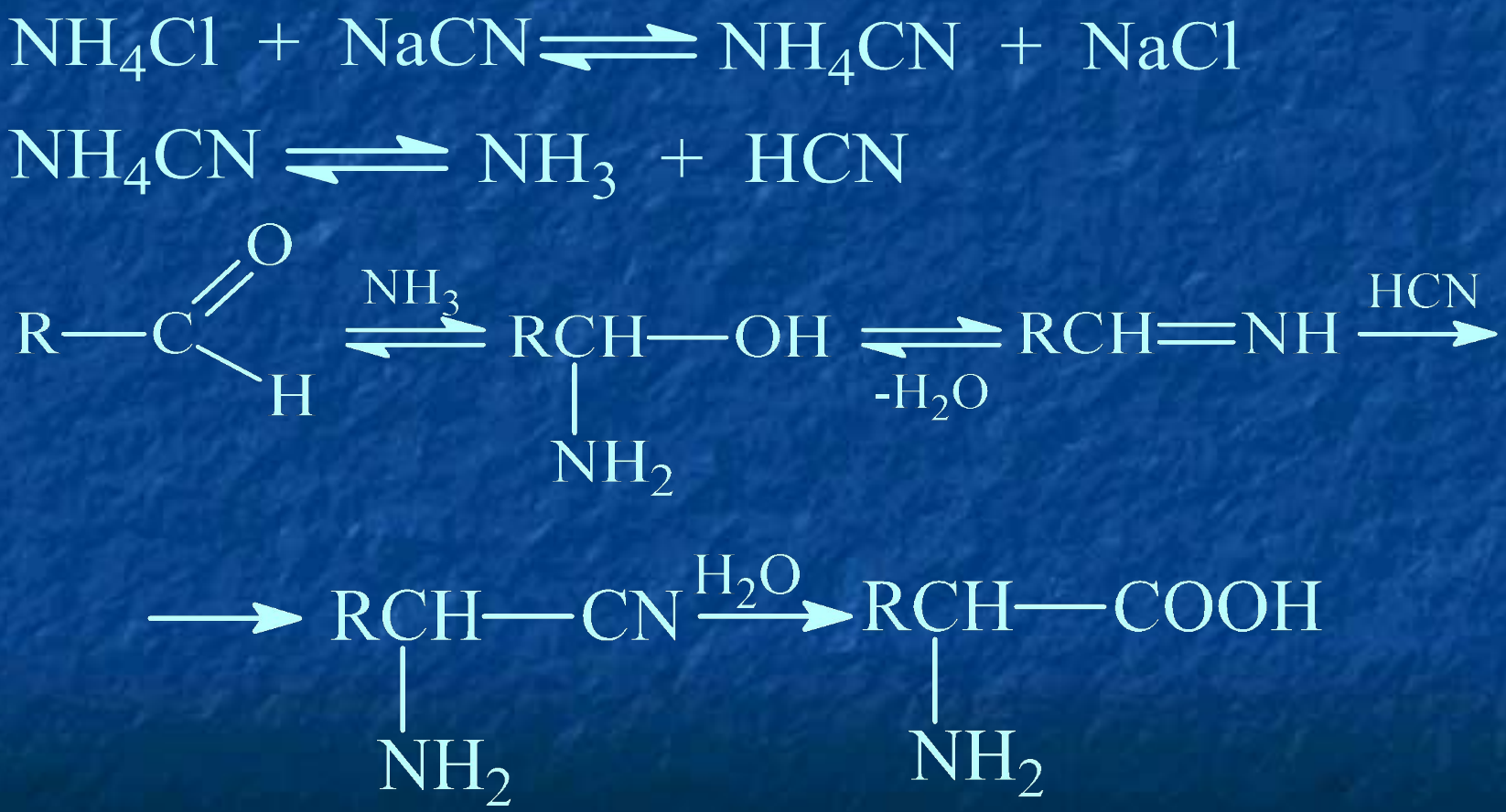


# Aminokislotalarning olinish usullari

*Shtekker – Zelinskiy sintezi.*



# Aminokislotalarning olinish usullari

- N tutgan Aminomalon efirlarning alkillanishi
- α - galogen tutgan efirlarning aminlanishikaliy ftalamid yordamida)

# Aminokislotalarning olinish usullari

## Aminokislotalarning biologik olinish xossalari.

Корм с добавкой рацемической смеси α-аминокислот

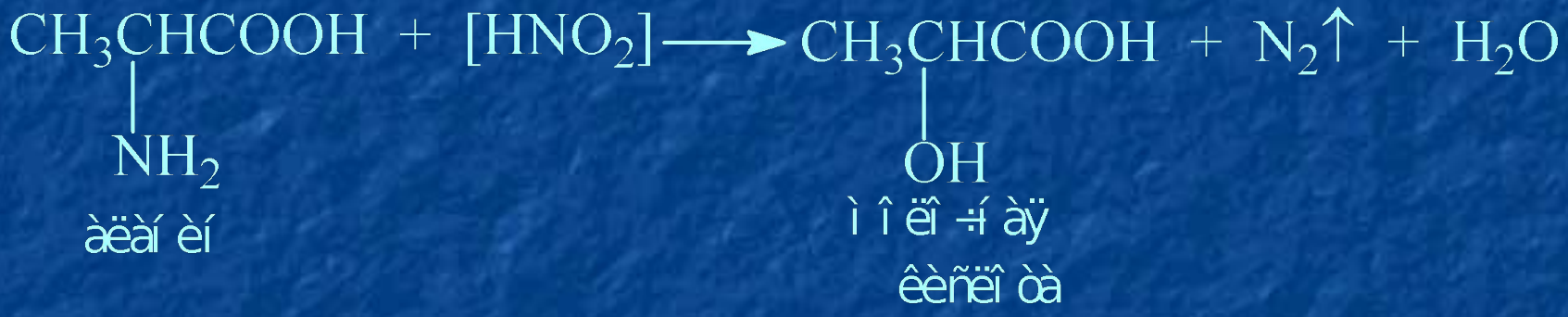
Отходы с оптически активным изомером α-аминокислоты

Очистка

Оптически чистый изомер α-аминокислоты

# Aminokislotalarning kimyoviy xossasi

*Aminoguruh reaksiyasi*

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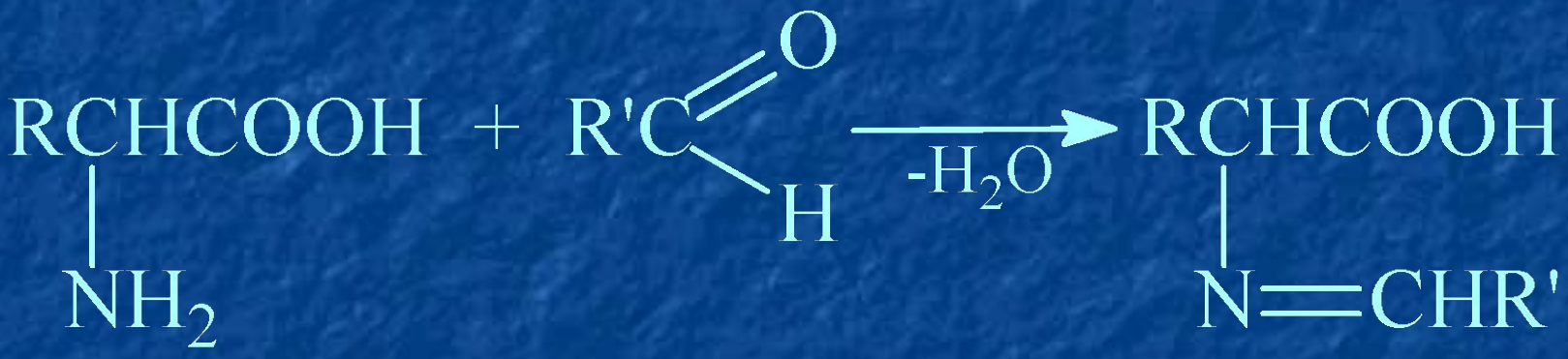
***Van – Slayk metodi***

# Aminokislotalarning kimyoviy xossasi

*Aminoguruh reaksiyasi*

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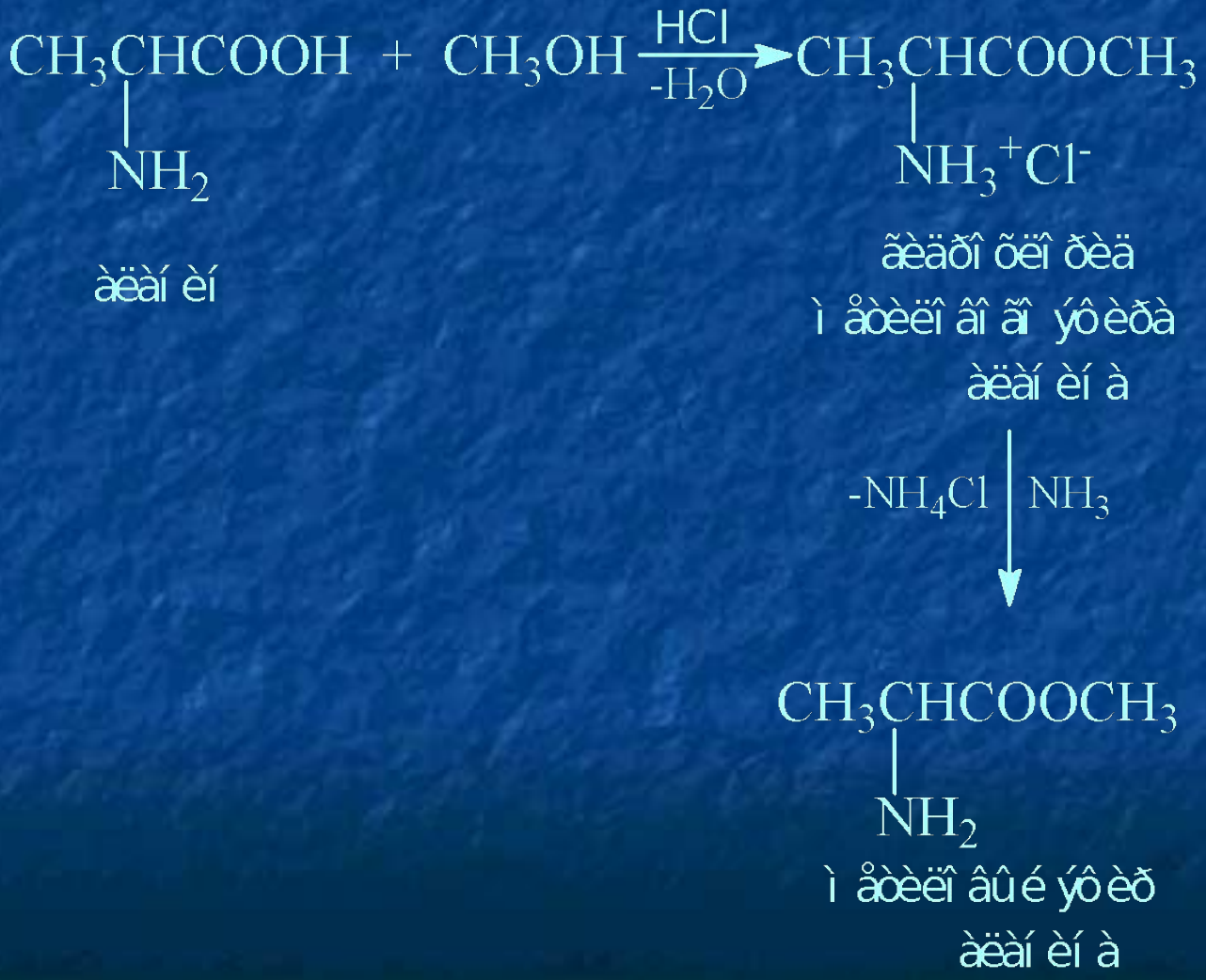
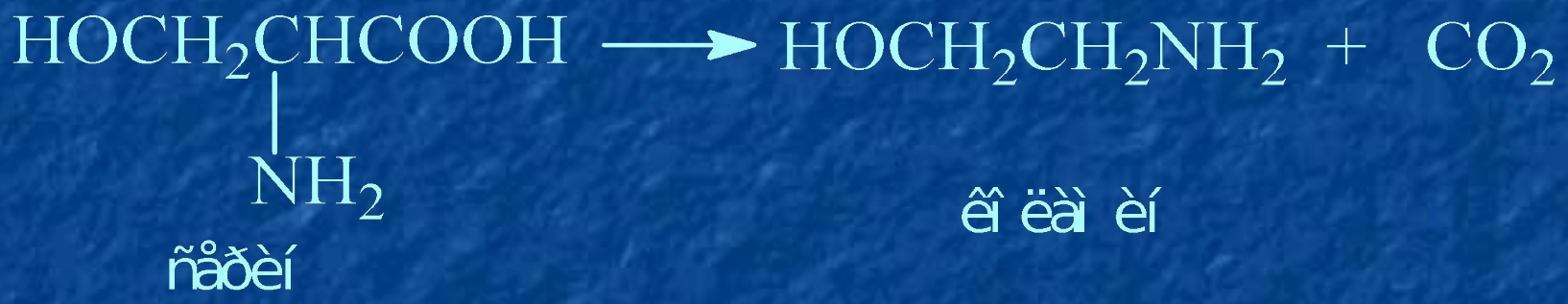
# Aminokislotalarning kimyoviy xossasi

*Karboksil guruh reaksiyalari*



# Aminokislotalarning kimyoviy xossasi

*Karboksil guruh reaksiyasi*

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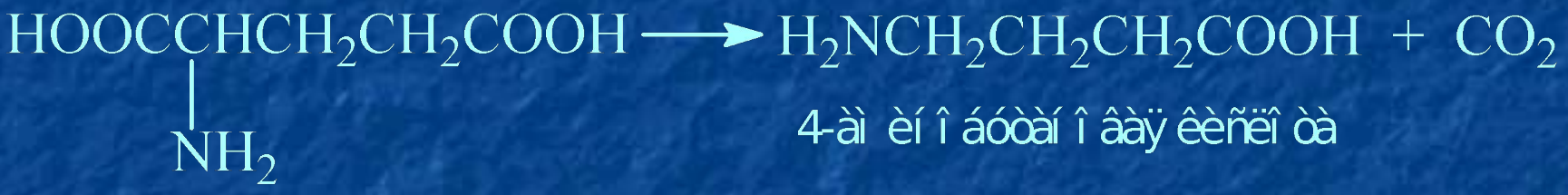


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# Aminokislotalarning kimyoviy xossasi

## *Sifat reaksiyasi*

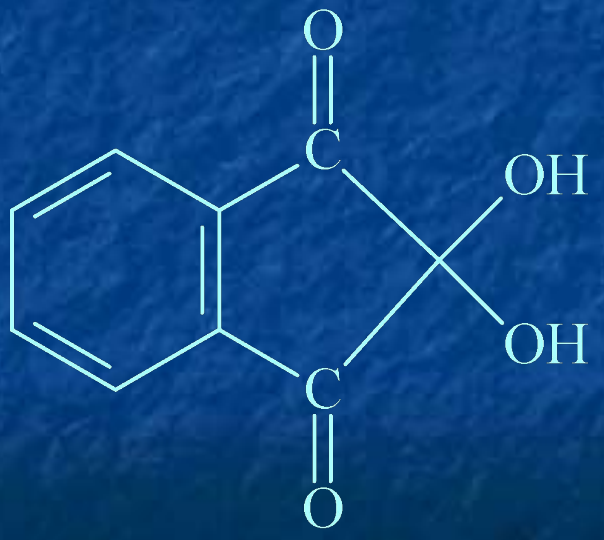
Ksantoprotein reaksiyasi

# Aminokislotalarning kimyoviy xossasi

*Sifat raksiyasi*

- Biuret reaksiyasi

  ( Mis (II) gidroksidi bilanCu(OH)$_2$ )
- Ningidrin reaksiyasi.

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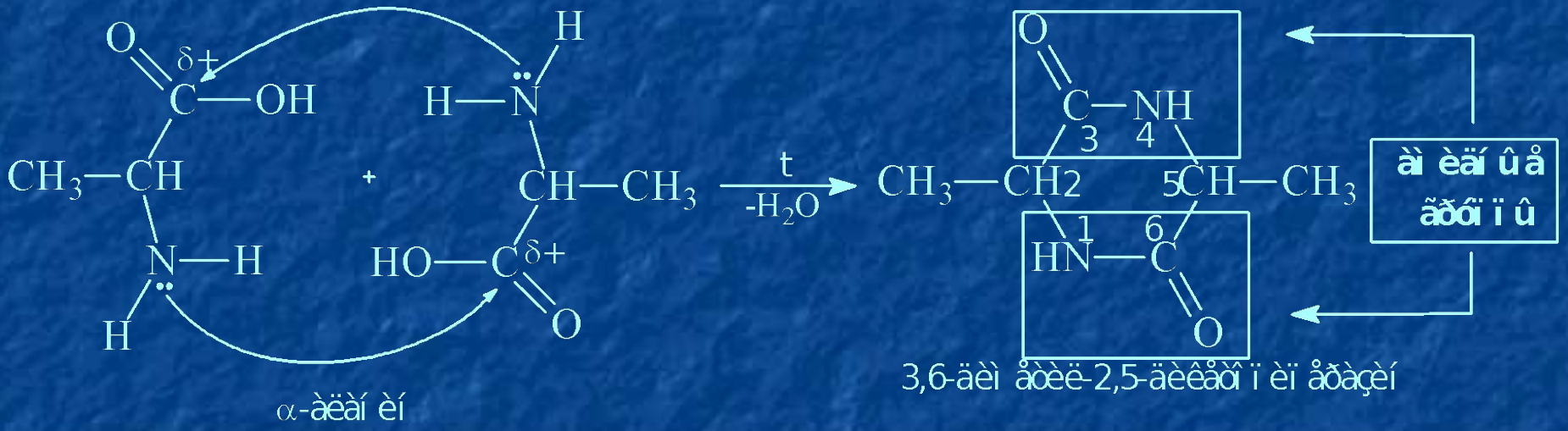
# Aminokislotalarning kimyoviy xossasi

## *α,β,γ aminokislotalarning spetsifik reaksiyalari*

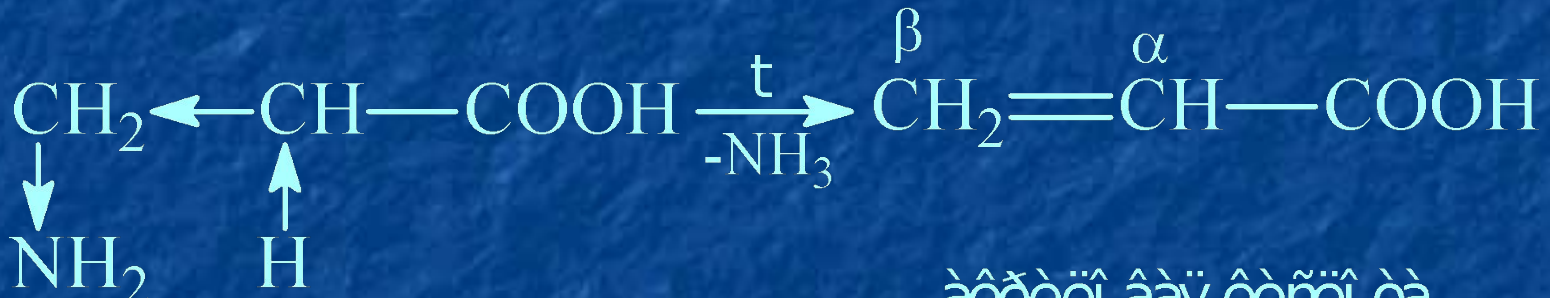
**α- aminokislota reaksiyalari**



# Aminokislotalarning kimyoviy xossasi

*α,β,γ aminokislotalarning spetsifik reaksiyalari*

***β- aminokislota reaksiyalari***

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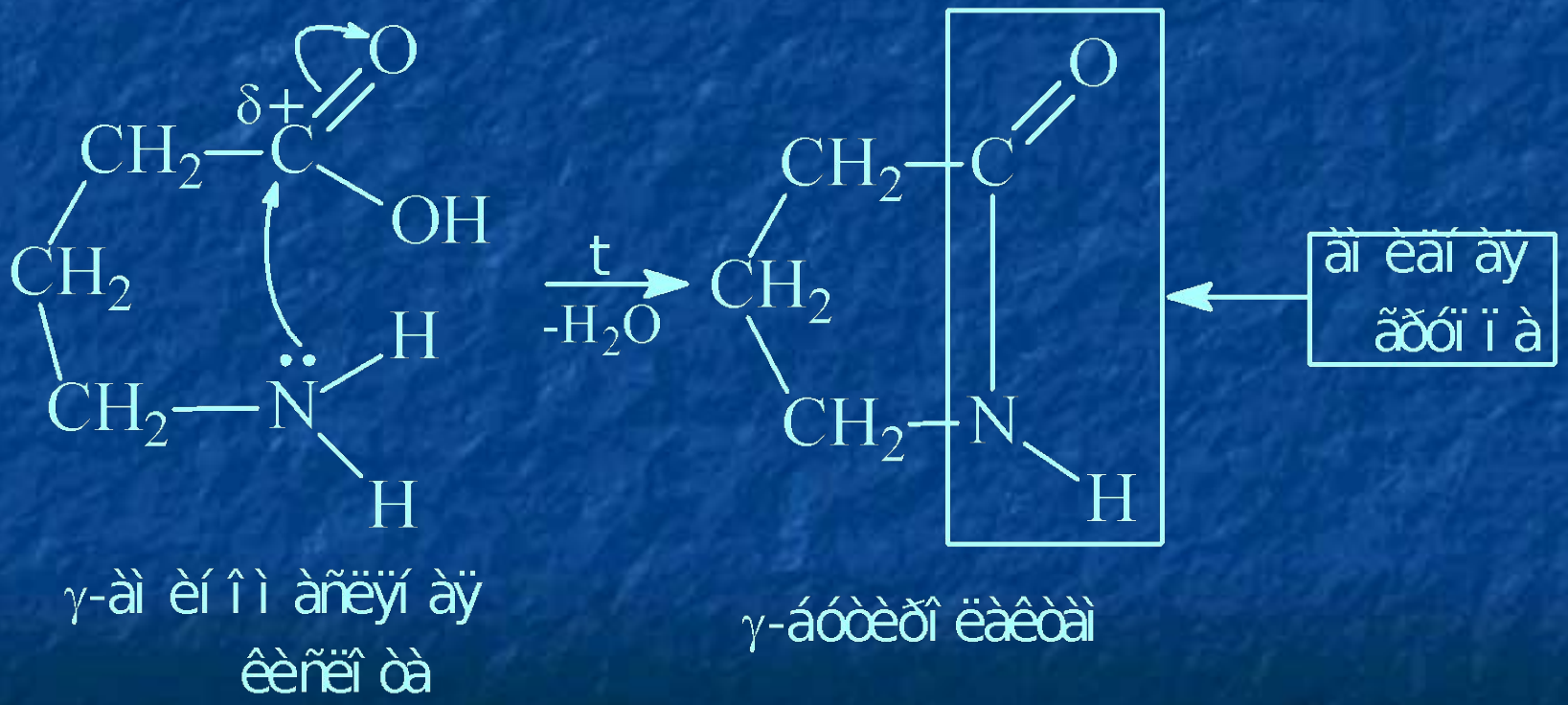
# Aminokislotalarning kimyoviy xossasi

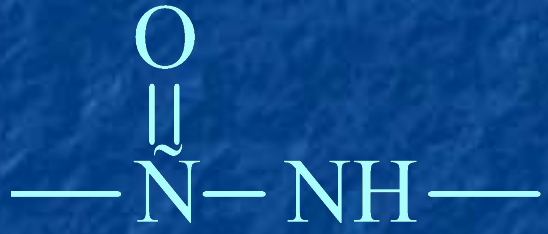
*α,β,γ aminokislotalarning spetsifik reaksiyalari*

***γ- aminokislota reaksiyalari***

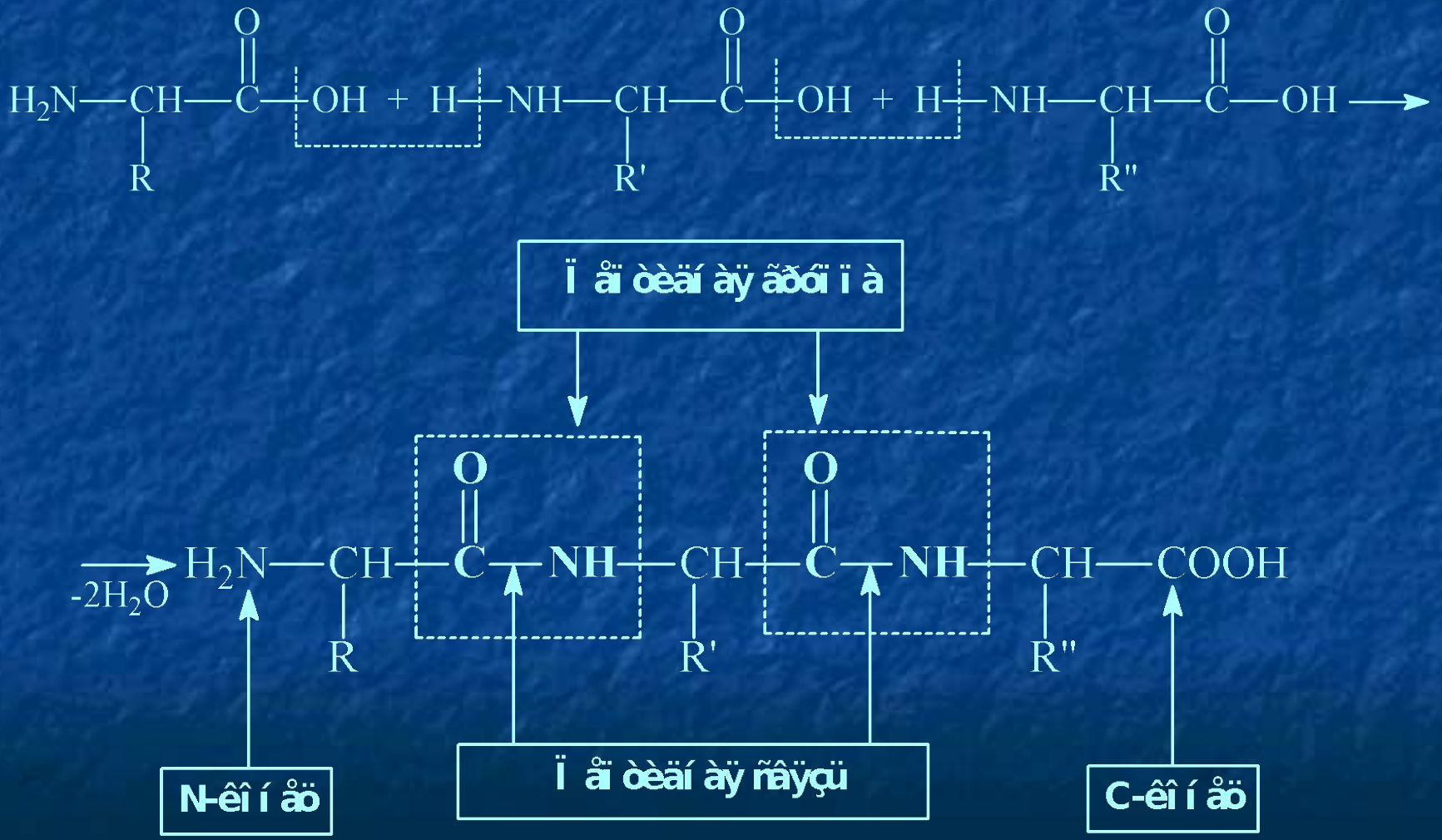


# Peptid va oqsillar

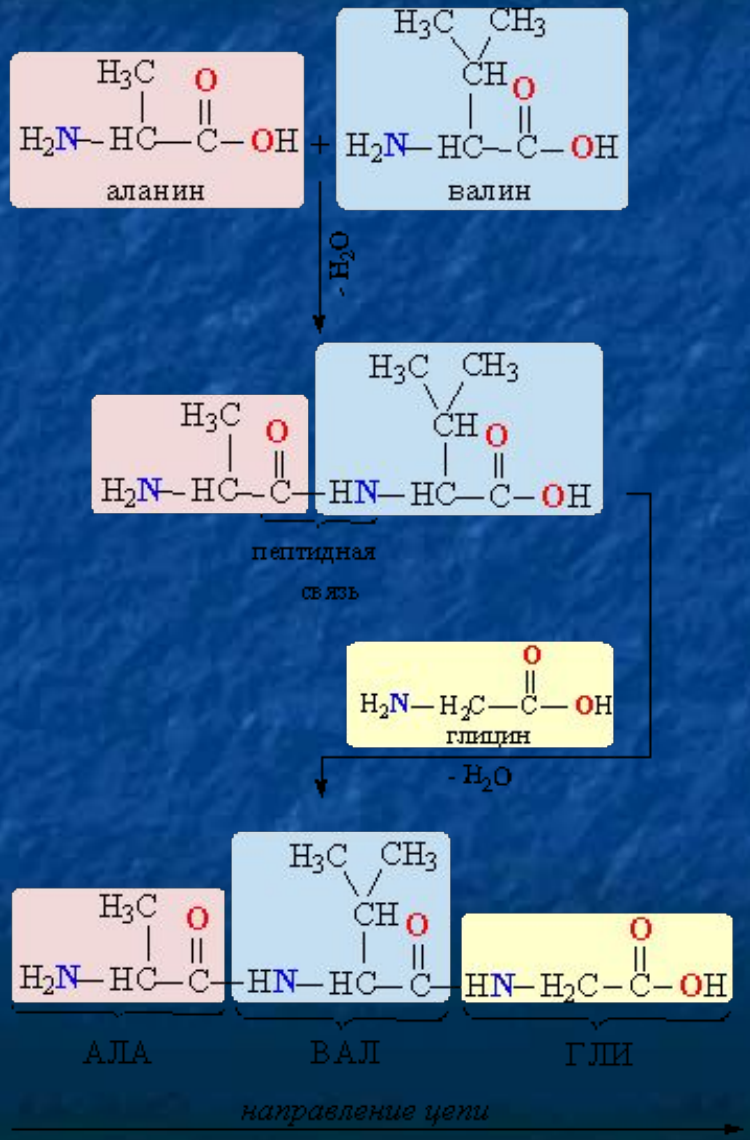
Peptidlar — bir nechta α aminokislotalarning qo‘shilishidan



# Peptidlar va oqsillar.

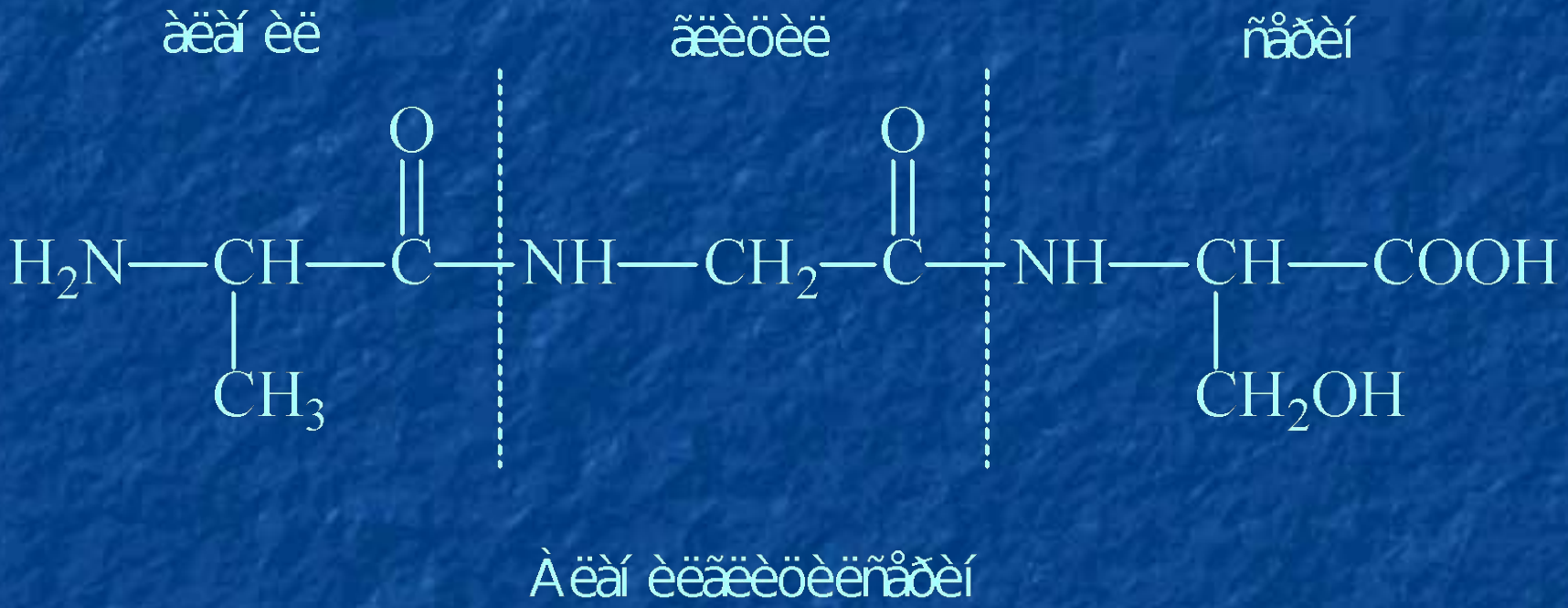


# Peptidlar va oqsillar

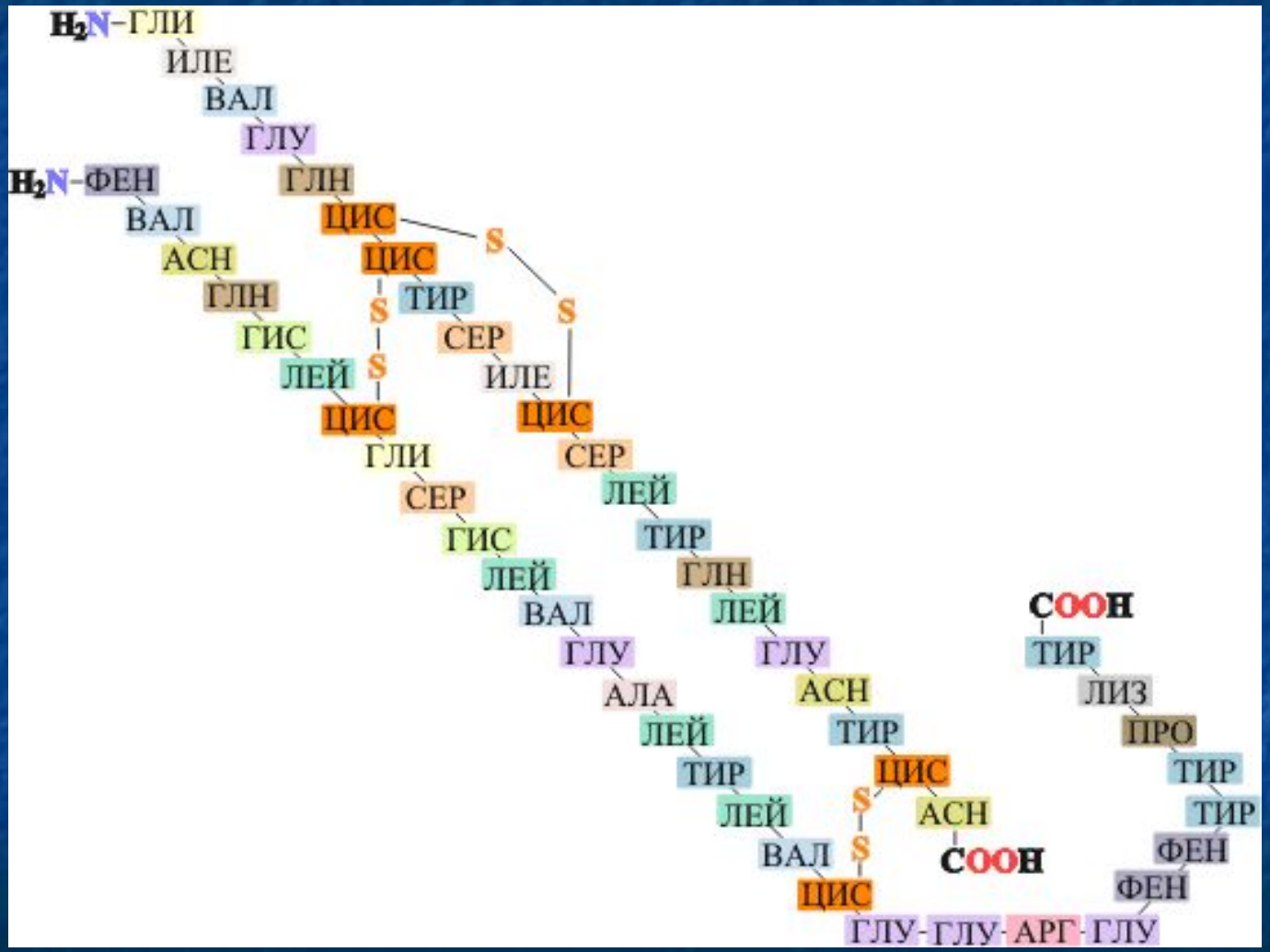



**Aminokislotalarning ketma – ket aloqasi**

# Peptidlar va oqsillar



# Peptidlar va oqsillar




**Insulin oqsilining birlamchi strukturasi**

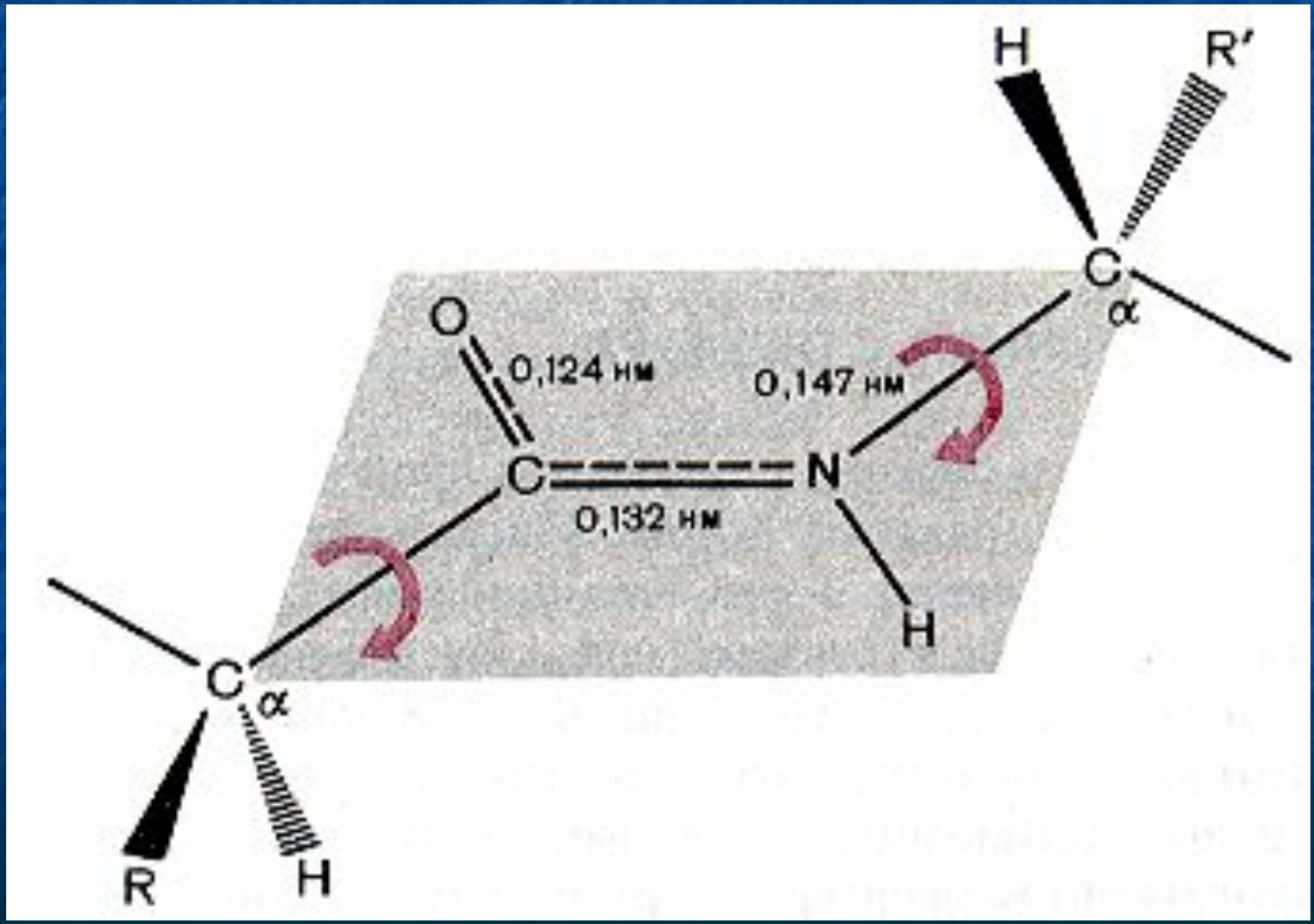
# Peptid va oqsilar

*Oqsillar tuzilishi*

***Первичная структура пептидов и белков — это последовательность аминокислотных остатков в полипептидной цепи.***

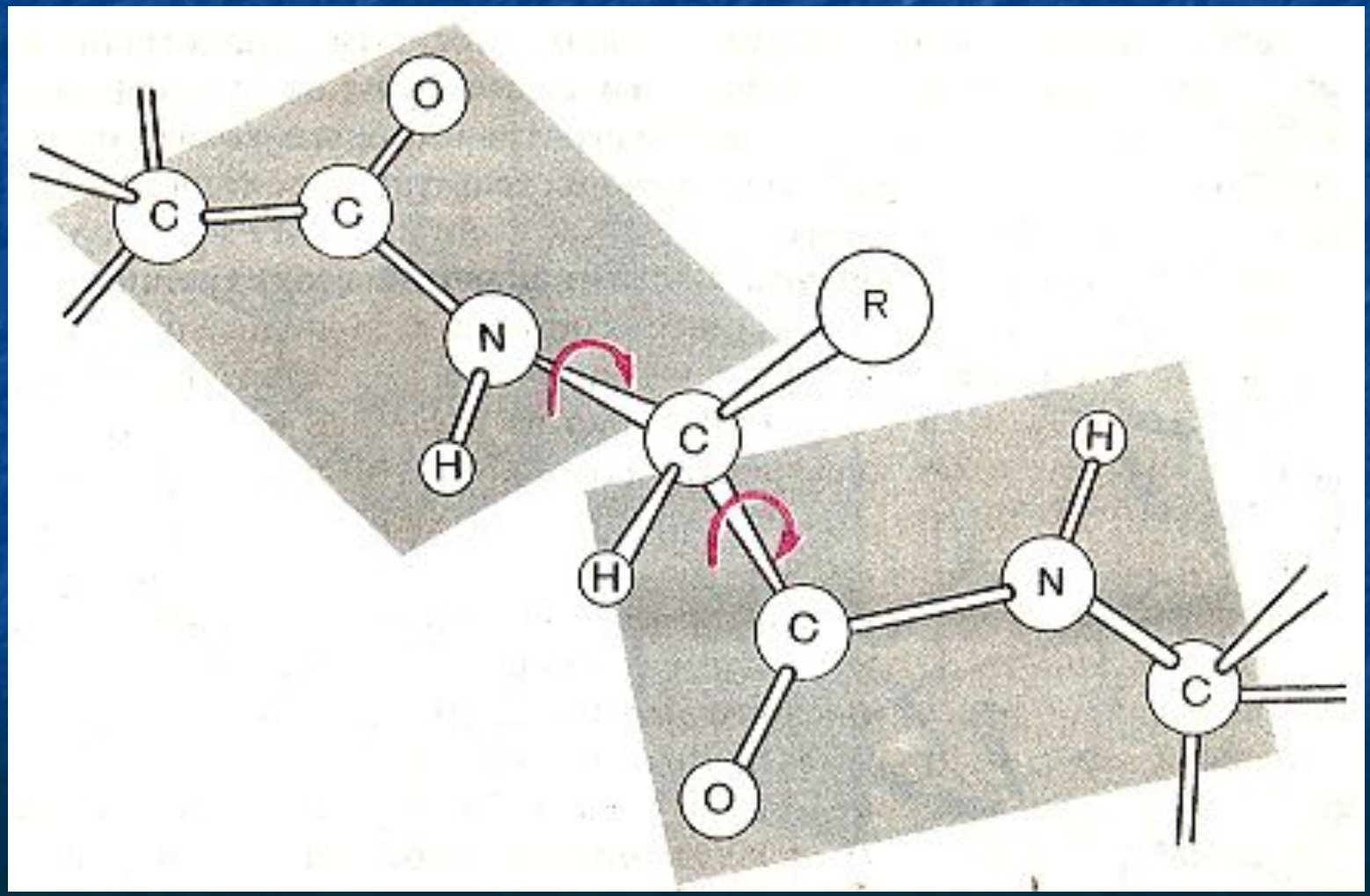
# Oqsillar va peptidlar

*Oqsillarning ikkilamchi strukturasi*



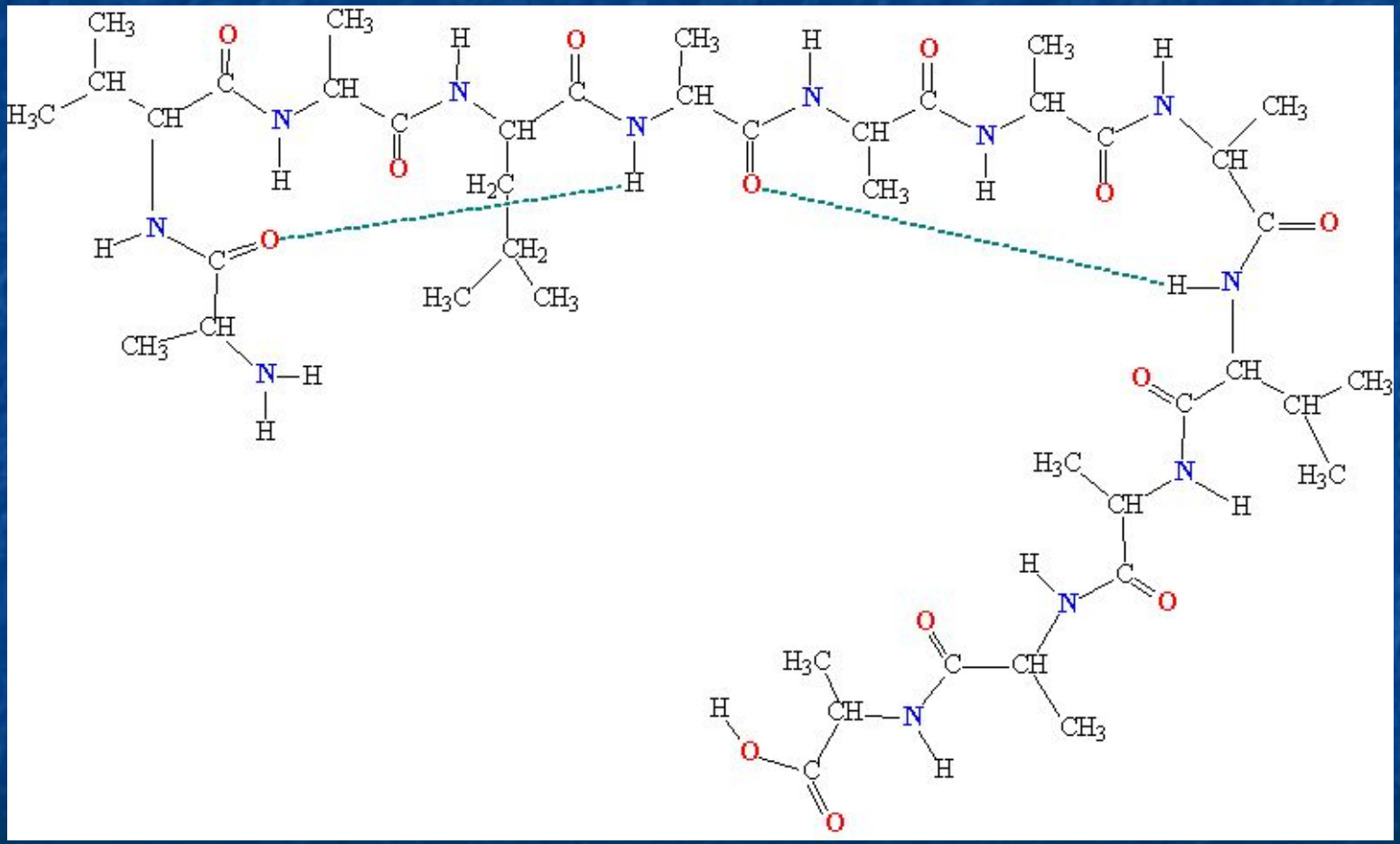
# Oqsillar va peptidlar

*Oqsillarning ikkilamchi strukturasi*



# Oqsillar va peptidlar

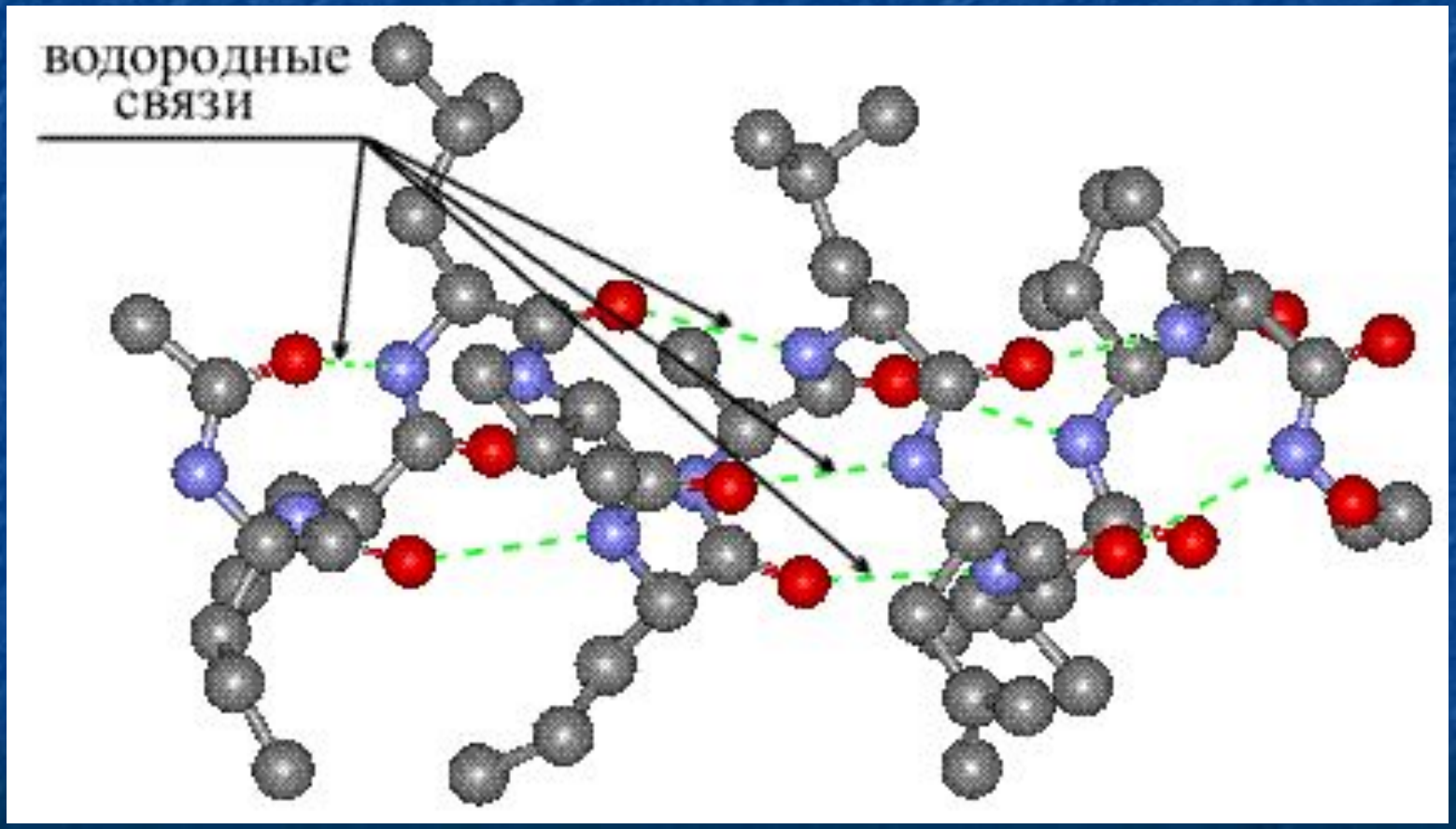
## *Oqsillarning ikkilamchi strukturasi*



**Ichki vodorod bog'lanish**

# Oqsillar va peptidlar

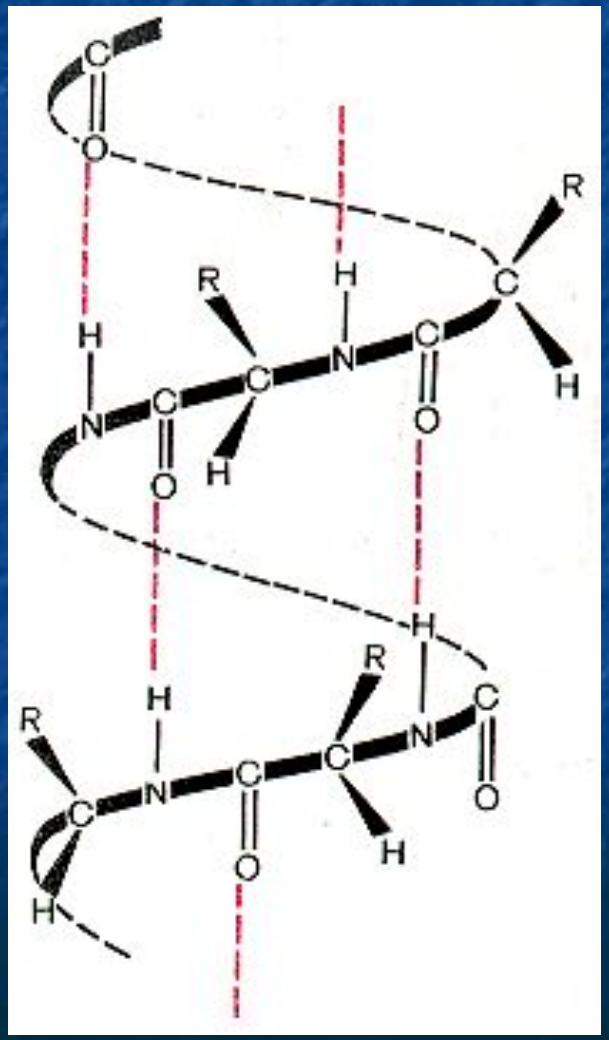
## *Oqsillarning ikkilamchi strukturasi*




*α*-aminokislotalarning struktura modeli.(yashil chiziqlar vodorod bog’lanishni ifoda etadi)

# Oqsillar va peptidlar

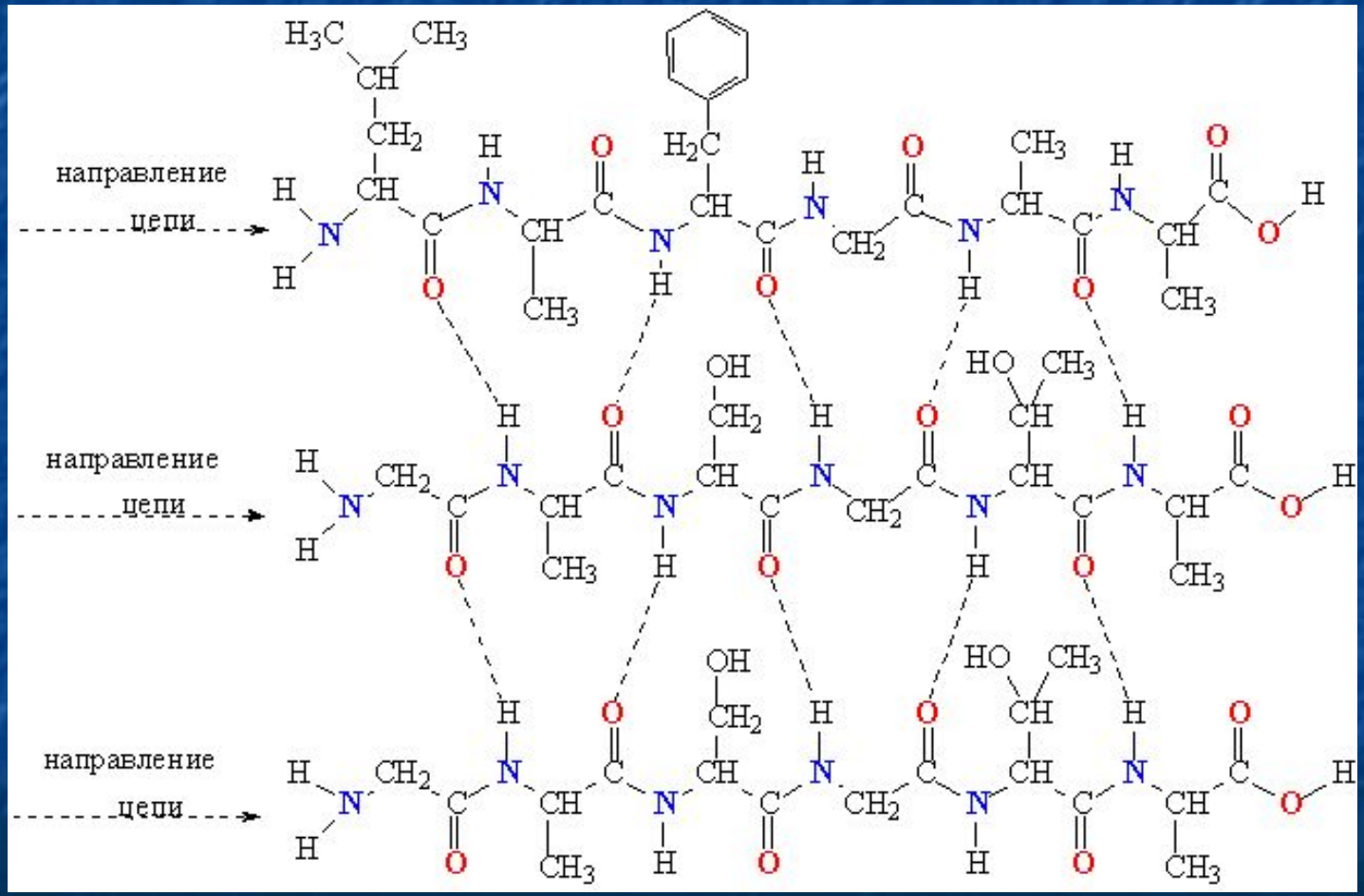
## *Oqsillarning ikkilamchi strukturasi*



oqsilning a- spiral molekulasi

# Oqsillar va peptidlar

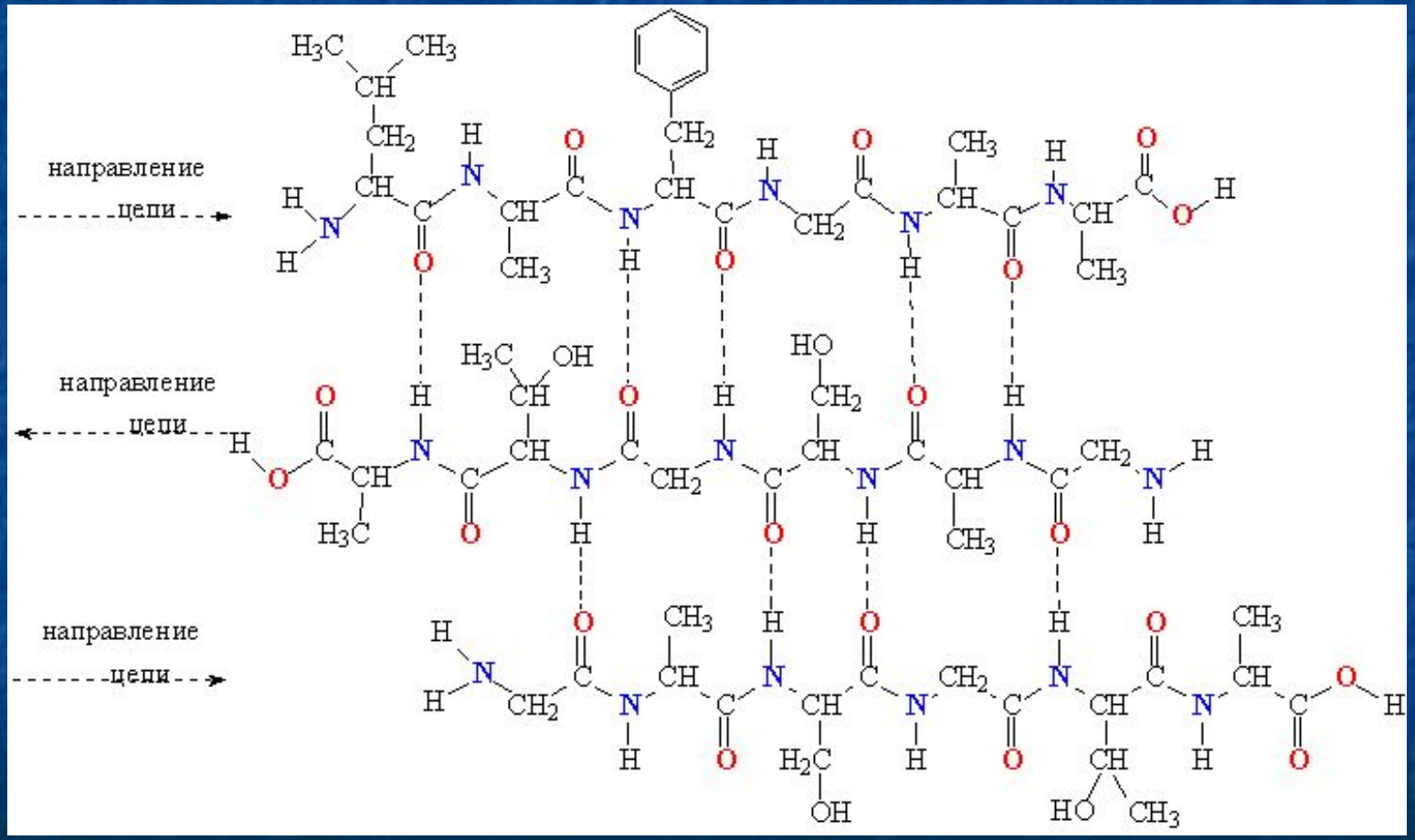
## *Oqsillarning ikkilamchi strukturasi*




**Uch xil polipeptid molekulasining parallel $\beta$- holati**

# Oqsillar va peptidlar

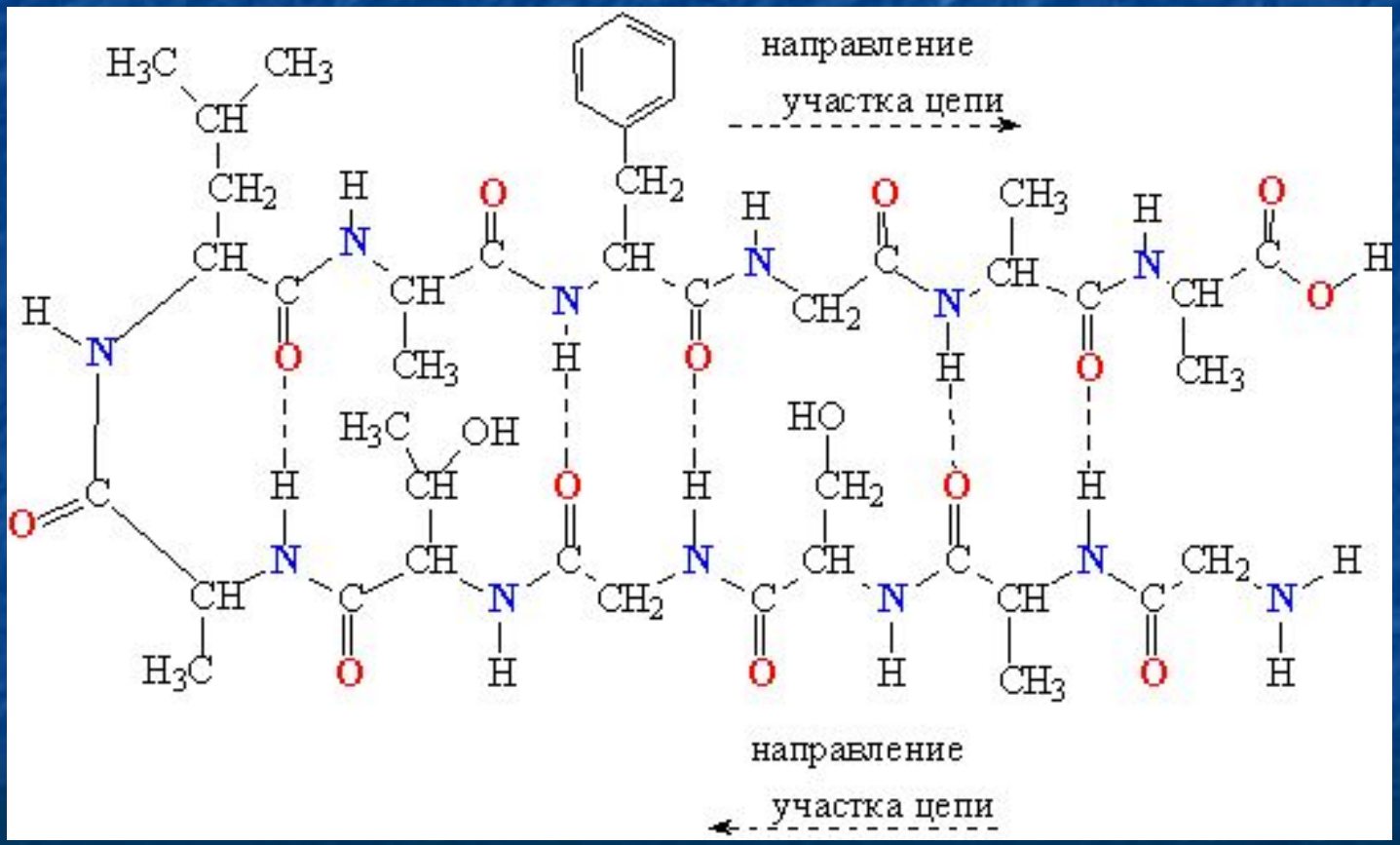
## *Oqsillarning ikkilamchi strukturasi*




**Uch xil oqsil molekulasining antiparallel $\beta$ - holati**

# Oqsillar va peptidlar

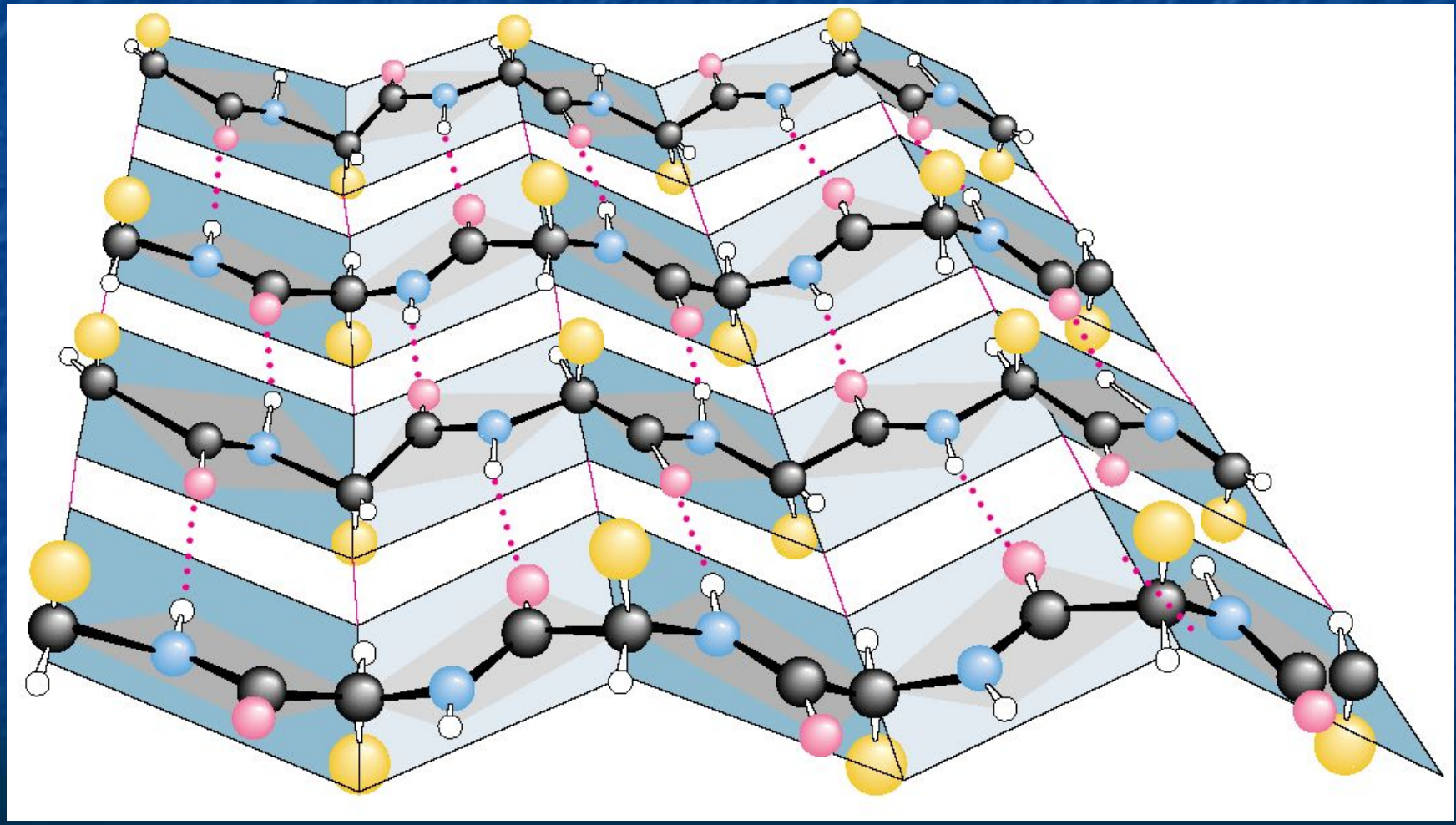
## *Oqsillarning ikkilamchi strukturasi*




**Bitta polipeptid halqaning oqsil molekulasi.**

# Oqsillar va peptidlar

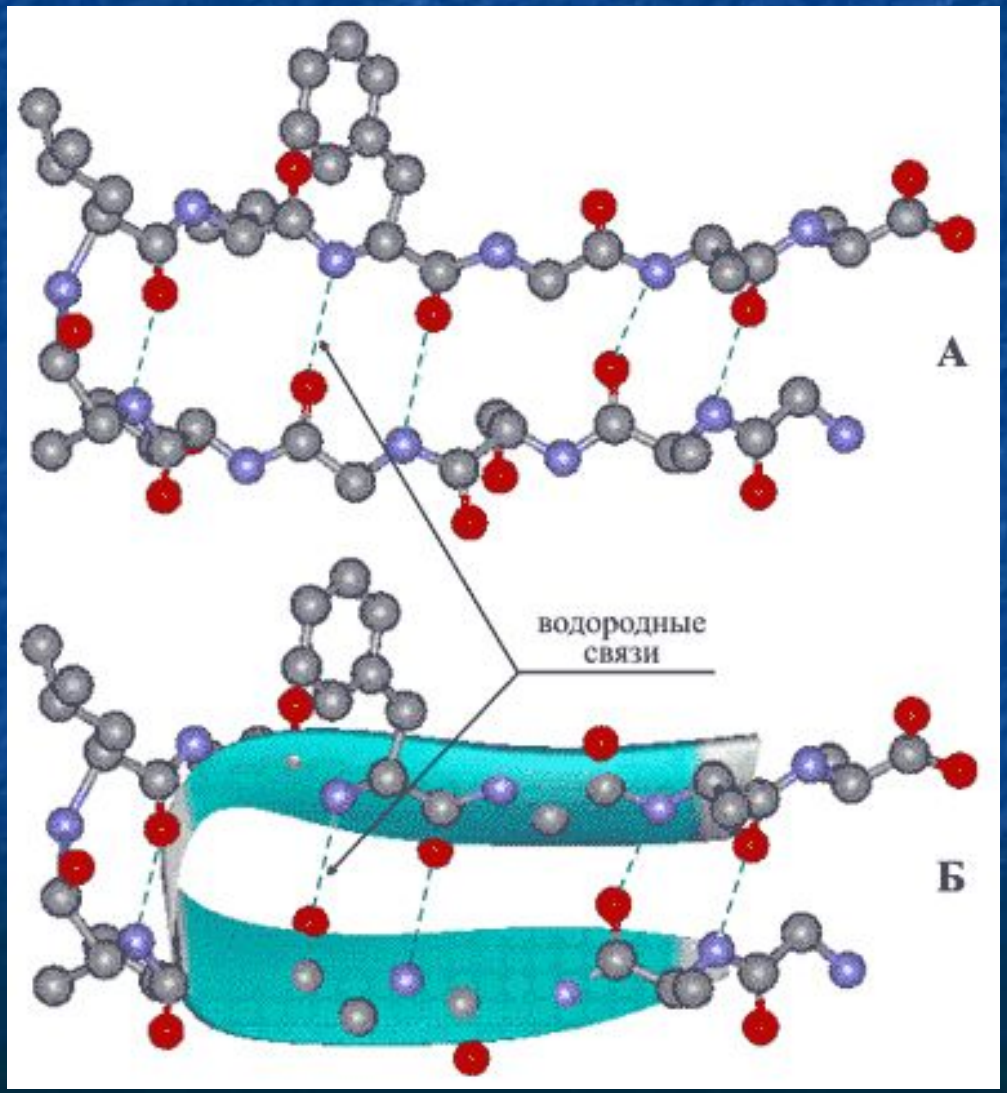
## *Oqsillarning ikkilamchi strukturasi*



Oqsilning $\beta$ -holati

# Oqsillar va peptidlar

## *Oqsillarning ikkilamchi strukturasi*




A - vodorod bog'lari bilan bog'langan polipeptid zanjiri qismi, (yashil chiziqlar nuqta).
B - polimer zanjir atomlar orqali cho'zilgan bir tekis kamar shaklida sxematik b-qurilish (vodorod atomlari ko'rsatilmagan).

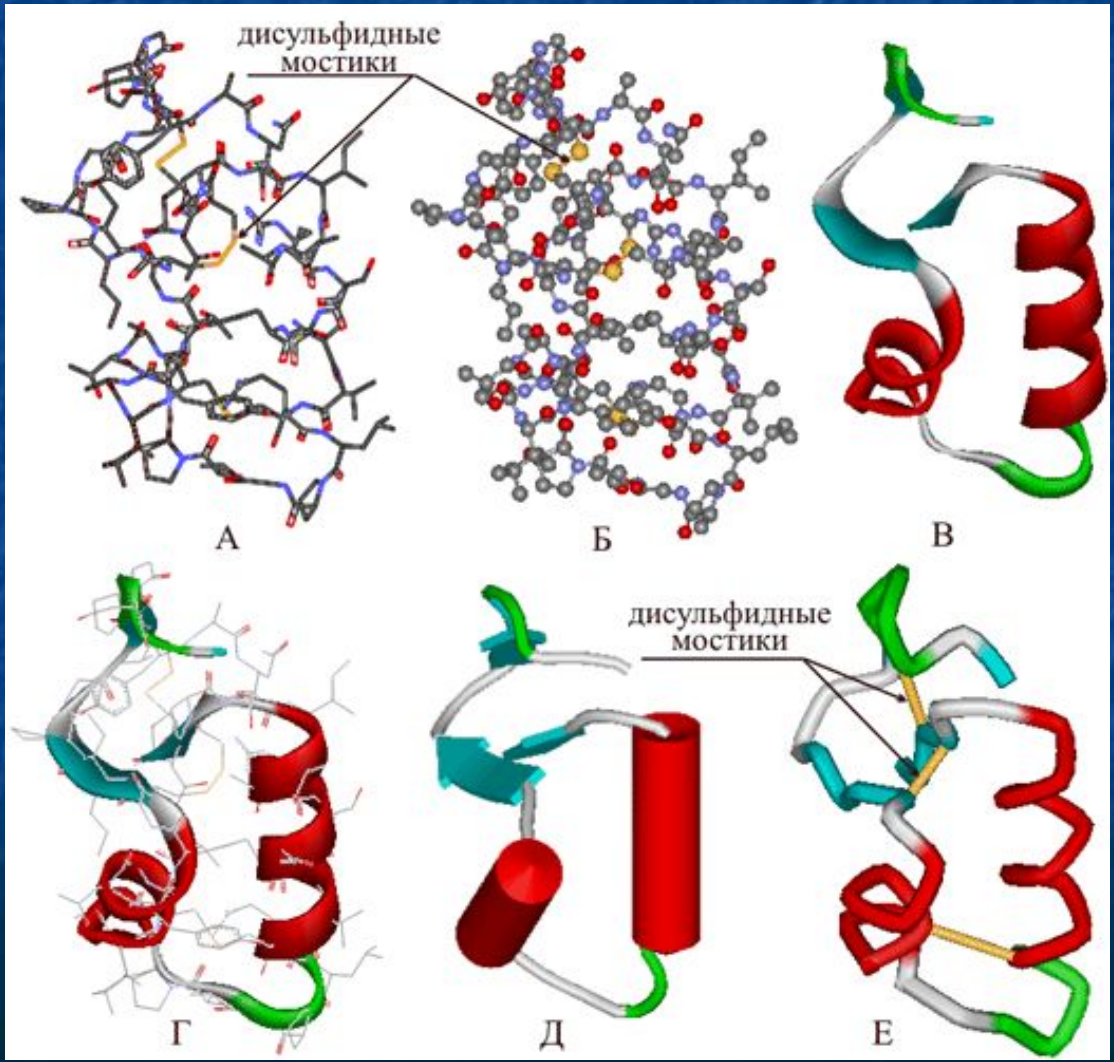
# Oqsillar va peptidlar

## *Oqsillarning ikkilamchi strukturasi*

Oqsil ikkilamchi tuzilishi - tarkibiy tashkilotning yuqori darajasi bo'lgan majburiy tuzilishli peptid guruhlar o'rtasida vodorod aloqasi tufaylidir

# Oqsillar va peptidlar

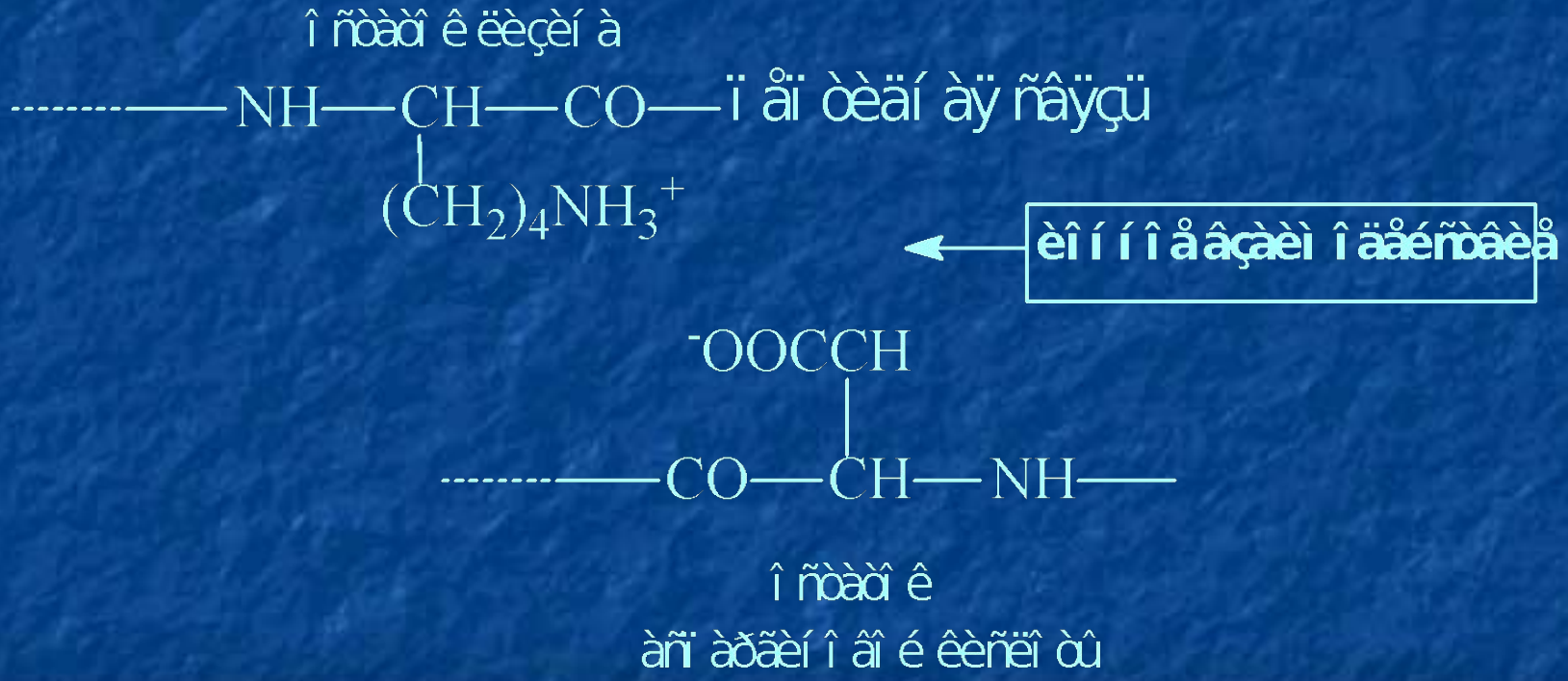
## *Oqsilning uchlamchi strukturasi*




Turli xil imkoniyatlari Krambina proteinining tuzilishi ko'ring.
Bir fazoviy Vahiyning bir tarkibiy formula.
B - bir hajmi modeli shaklida tuzilishi.
B - molekulaning oliy tuzilishi.
D - imkoniyatlari A va B birikmasi
D - oliy tuzilishi soddalashtirilgan vakillik.
E - disülfid ko'prik bilan oliy tuzilishi.

# Osillar va peptidlar

*OQsillarninf ion bog'lanishi.*

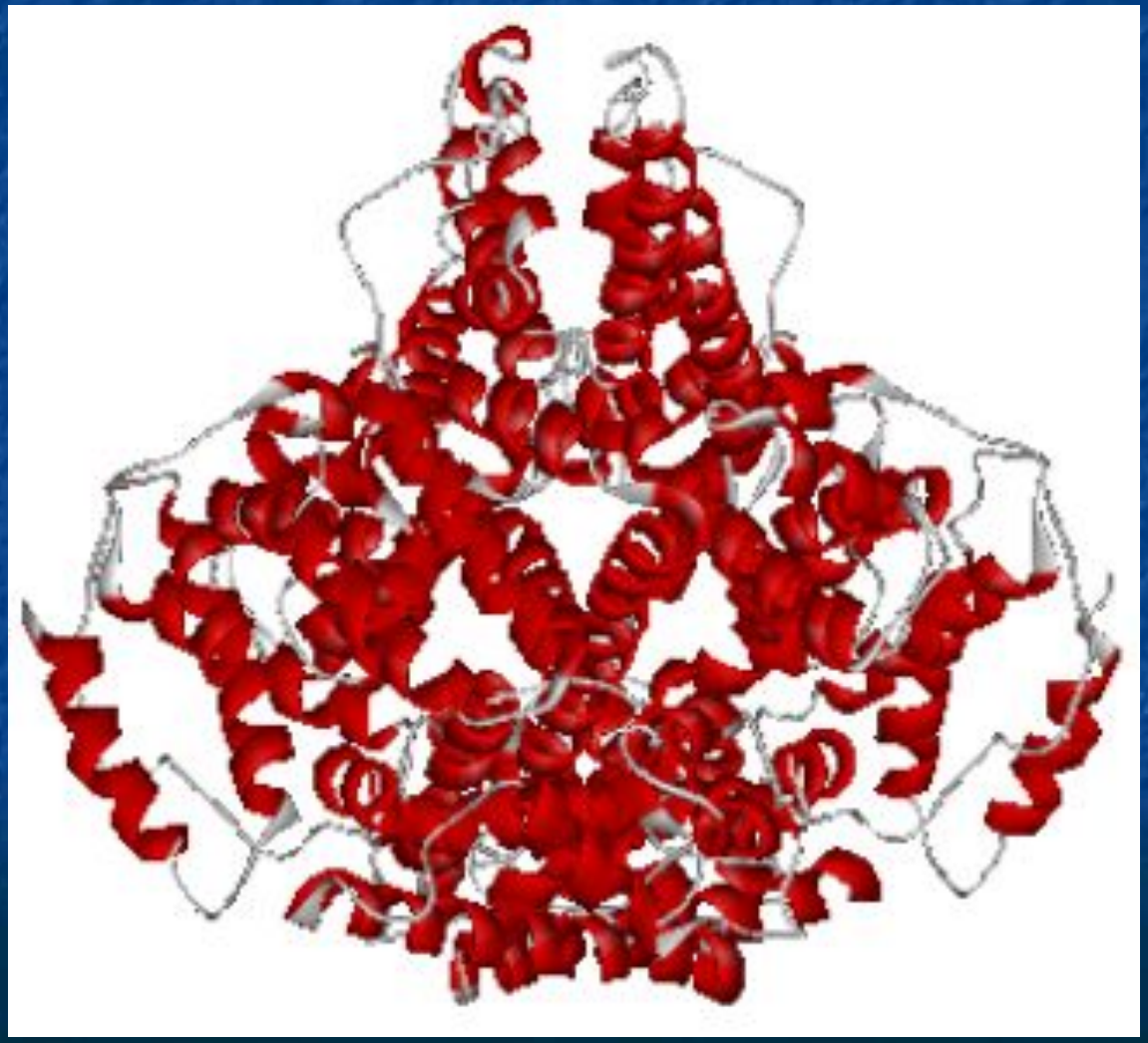


# OQsillar va peptidlar.

*Oqsildagi disulfid bog'lanish*

# Oqsilllar va peptidlar.

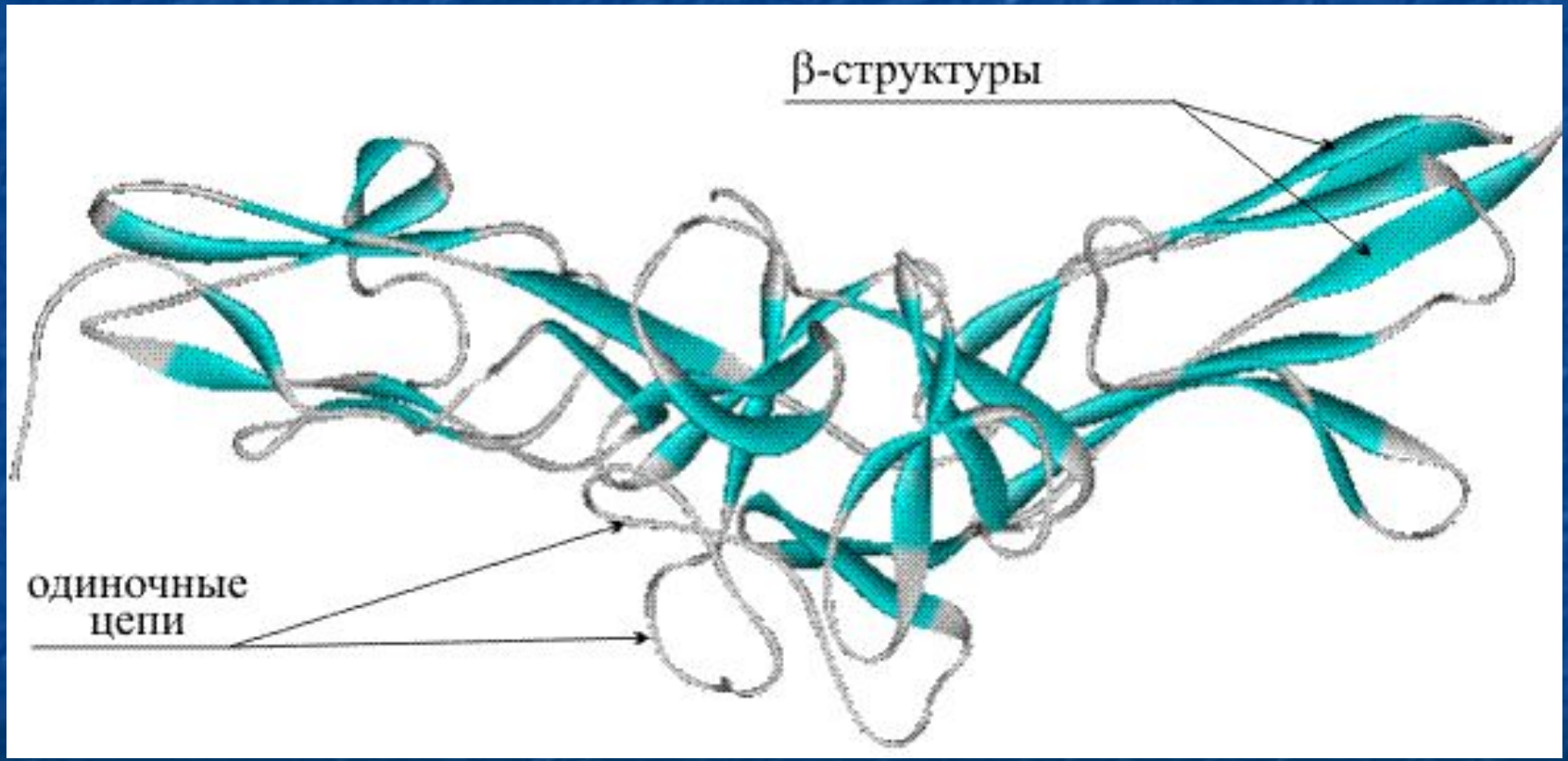
## *Globulin oqsili*



Yumaloq tuzilishi albumin (tuxum oqsili). Chirigan tuxum hidi manbai - protein tanazzuli jarayonida tez vodorod sülfidin hosil tizim bo'yicha disülfid ko'prik hozirgi sulfgidridnye bepul HS-guruhlar, tarkibida qo'shimcha ravishda. Disülfid ko'prik ko'p yanada barqaror va oqsil kengaytirish vodorod sülfidin hosil emas

# Oqsillar va peptidlar

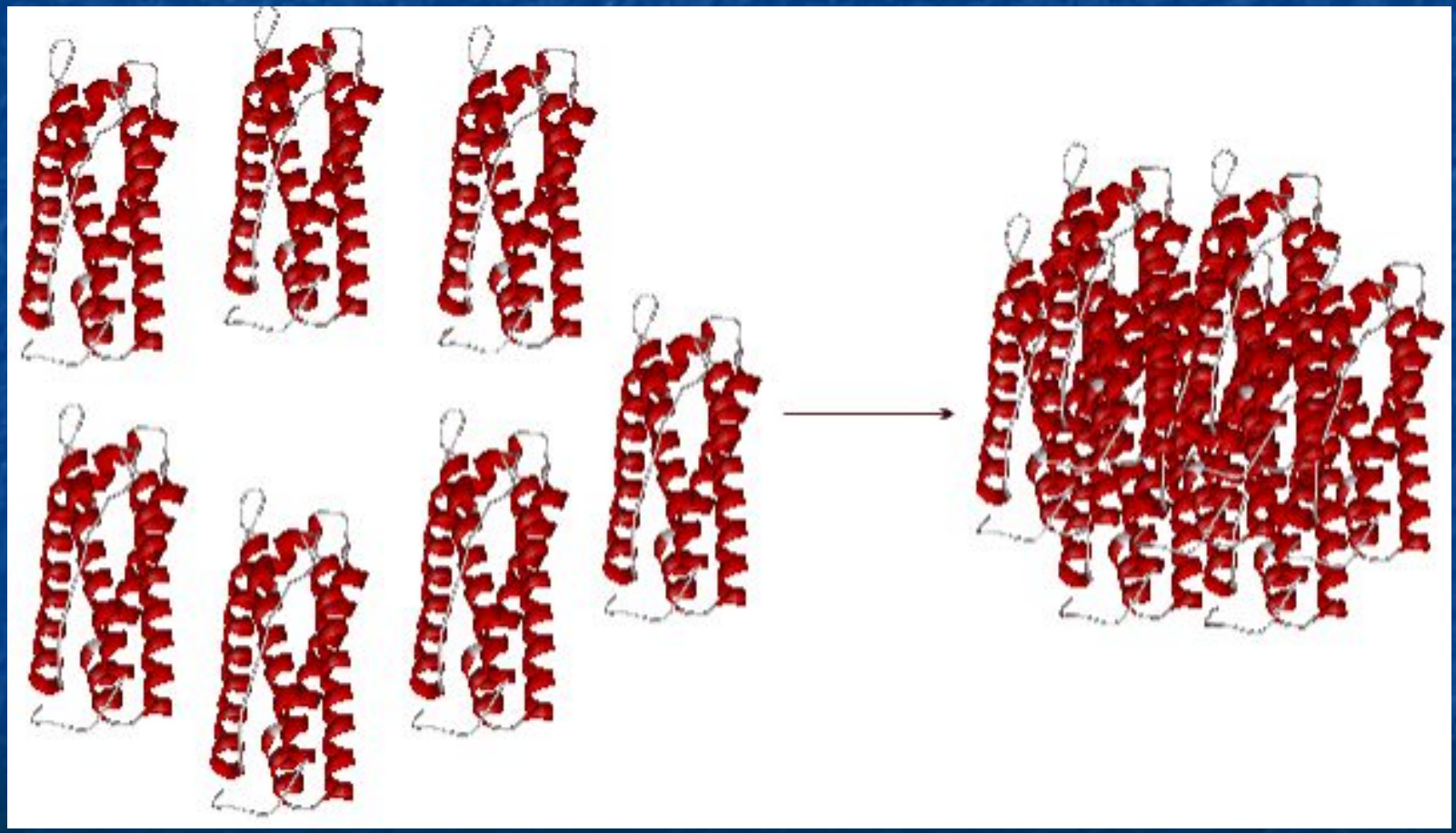
## *Fibrilyar oqsillar*




**Fibrionning fibrilyar oqsili**

# Peptidlar va oqsillar

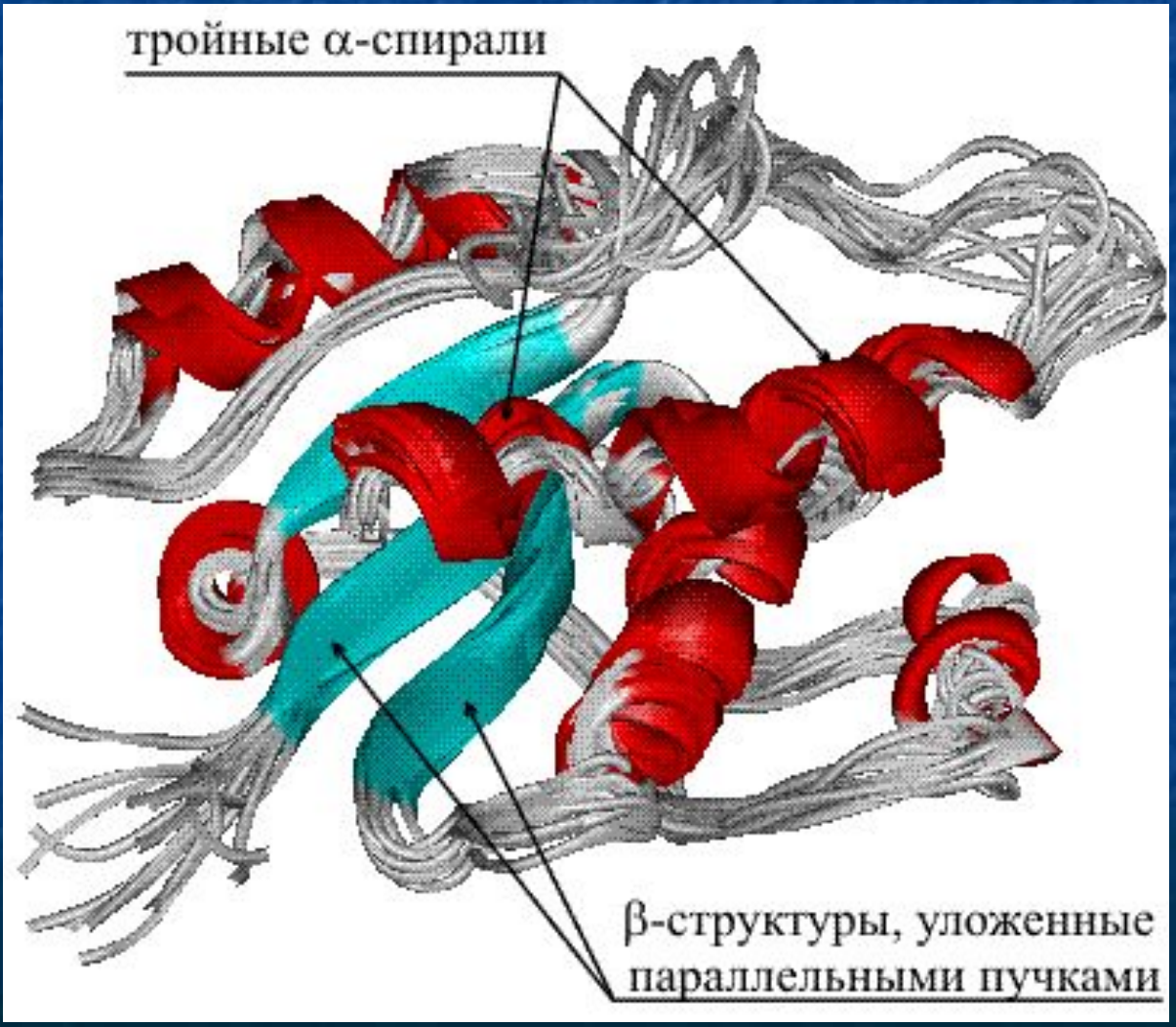
## *Oqsilning to’rtlamchi strukturasi*



**Globulin oqsilining to’rtlamchi strukturasi**

# Peptidlar va oqsillar

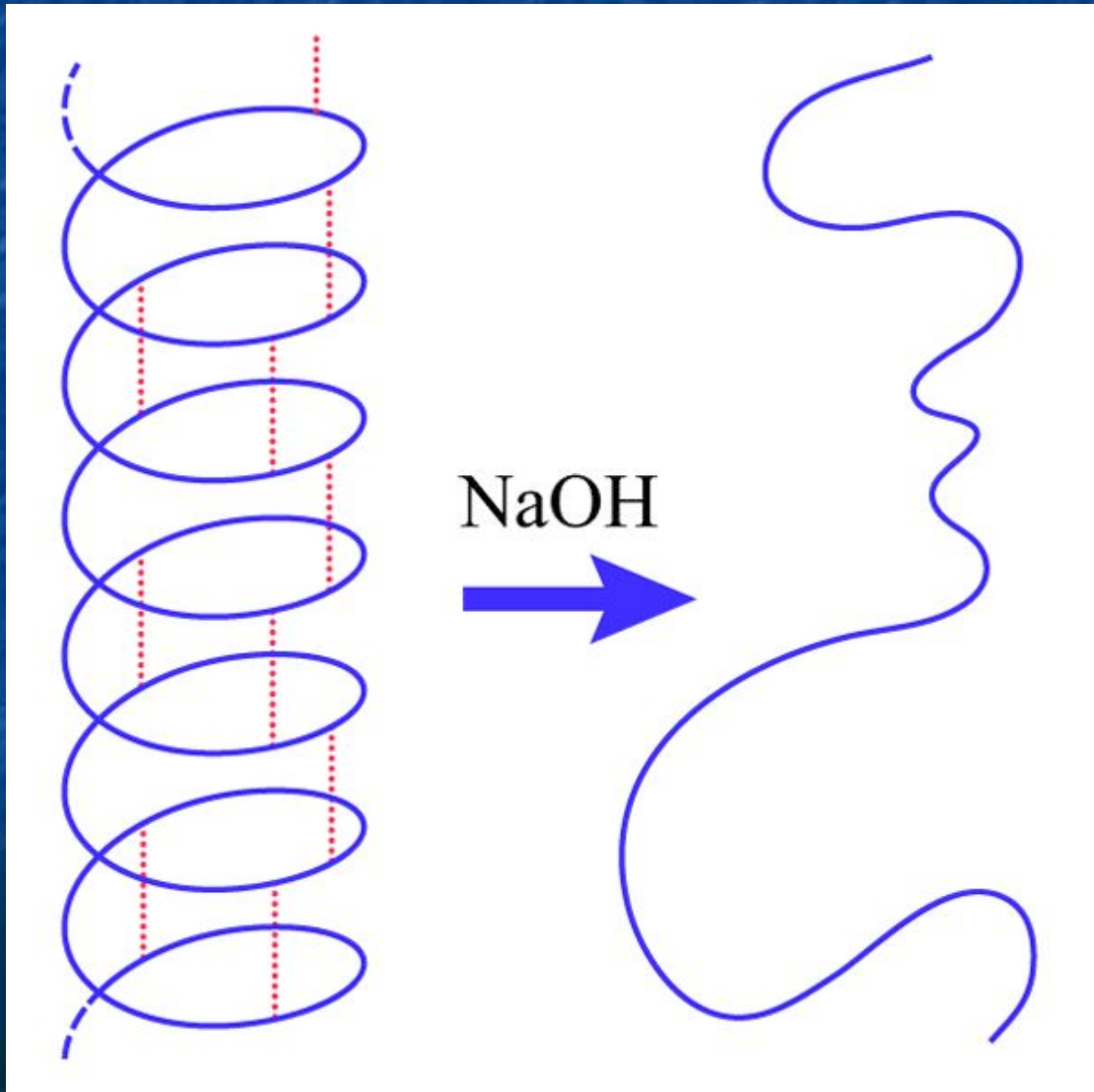
## *Oqsilning to’rtlamchi strukturasi*




Fibrilyar kollagen oqsil Supramolekulalari. Kollagen misolida fibrilyar oqsillarni yaratish sifatida ishtirok etishi mumkin, deb ko'rish mumkin. A-spiral va b-qurilish. Dumaloq oqsillarni uchun bir xil, ular oliy tuzilmalar ikki turdagi bo'lishi mumkin

# Peptidlar va oqsillar
## *Oqsillar denaturatsiyasi*

Yuqorituzilishdagi tuzilmalar fizik va kimyoviy omillar (yuqori harorat, kislota, ishqor va b.) ta’sirida quyi tuzilishdagi shakllarga qaytadi (bu hodisa Oqsillar denaturatsiyasi deb ataladi), natijada ular o‘z biologik faolligini yo‘qotadi.



# Peptidlar va oqsillar.