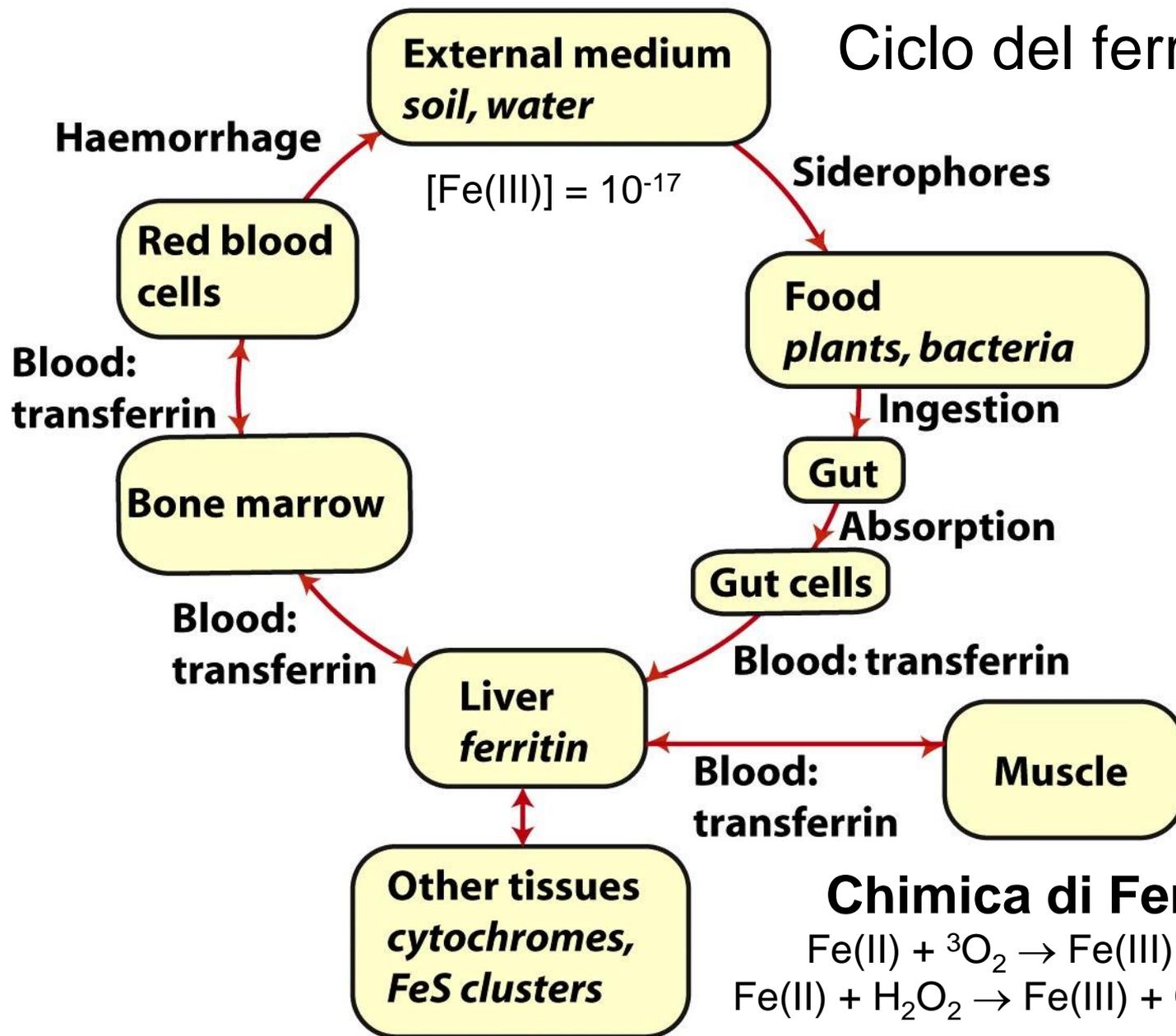
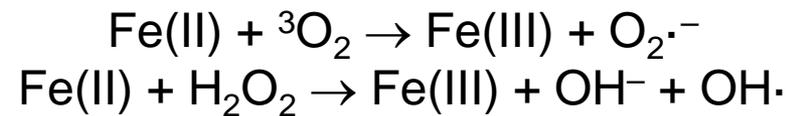


Microtomografia di fluorescenza ai raggi X

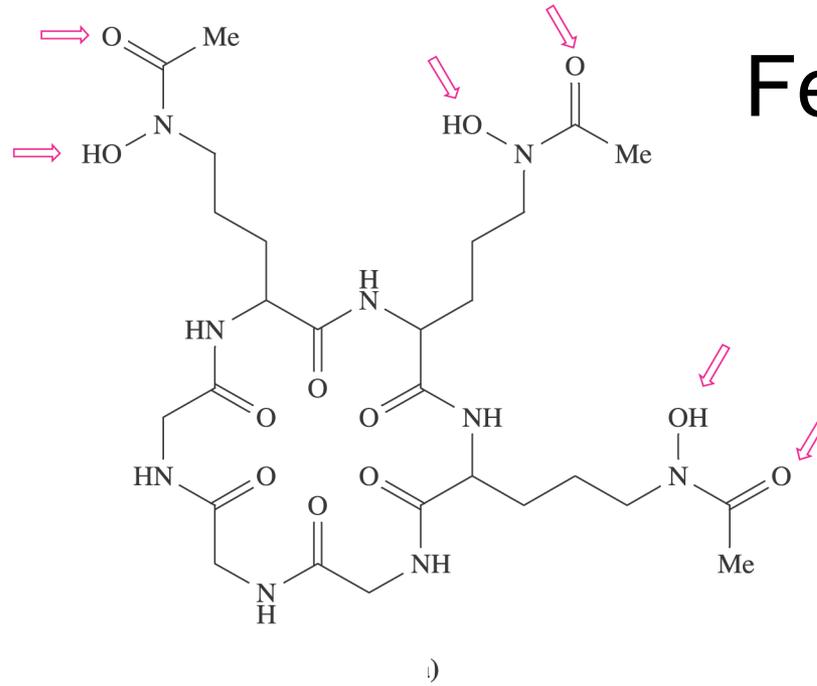
Ciclo del ferro



Chimica di Fenton



Siderofori
Idrossammati
(funghi, lievito)

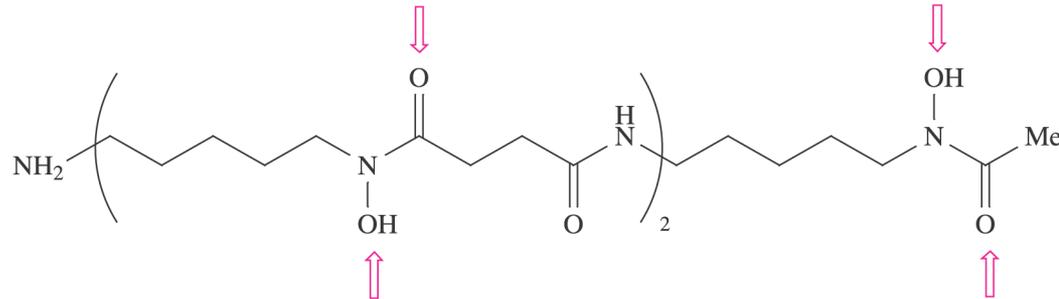


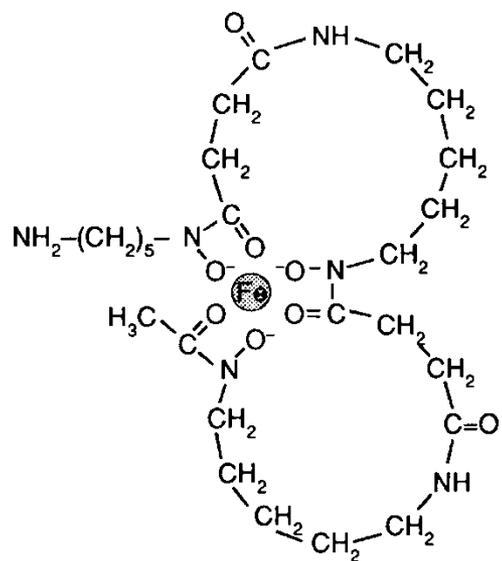
Fe(III) alto spiro

desferricromo

d)

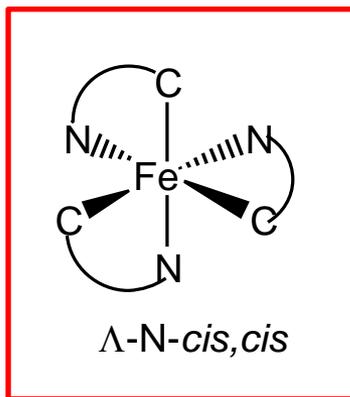
desferriossamina



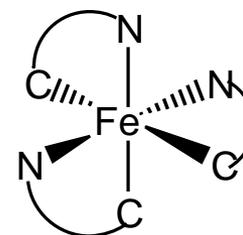


ferrioxamine B

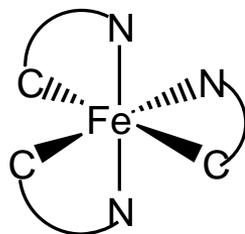
without Fe: deferrioxamine B



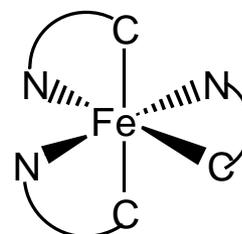
Λ -N-*cis,cis*



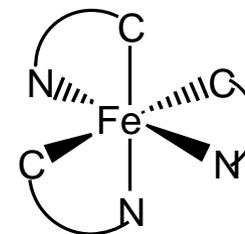
Λ -C-*trans,cis*



Λ -N-*trans,cis*

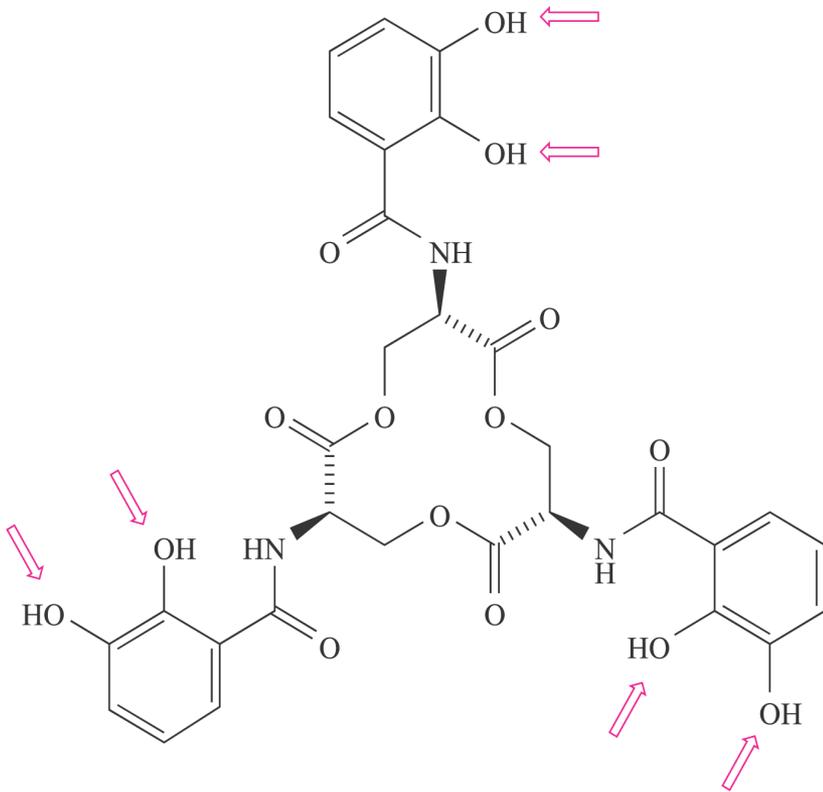


Λ -C-*cis,trans*



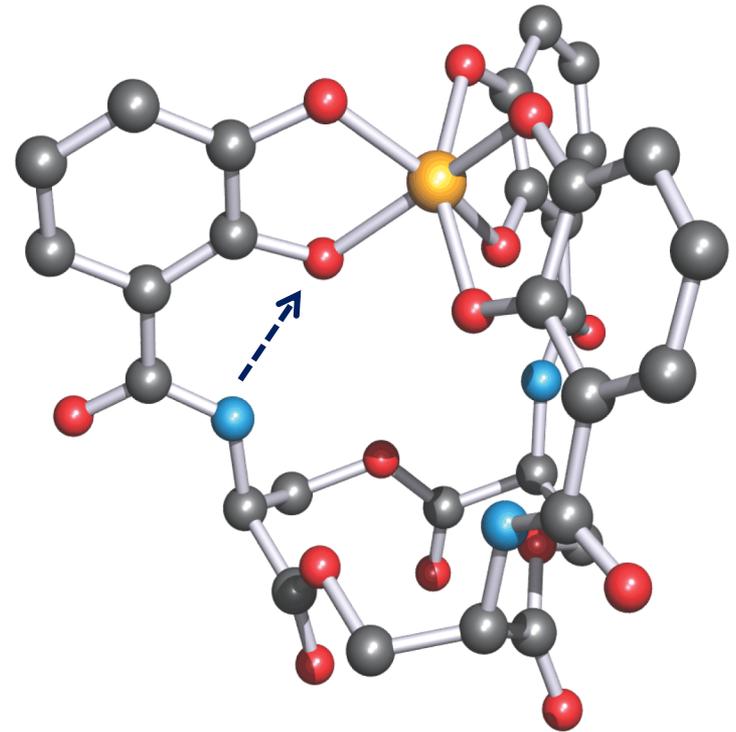
Λ -N-*trans,cis*

Siderofori catecolati (batteri)



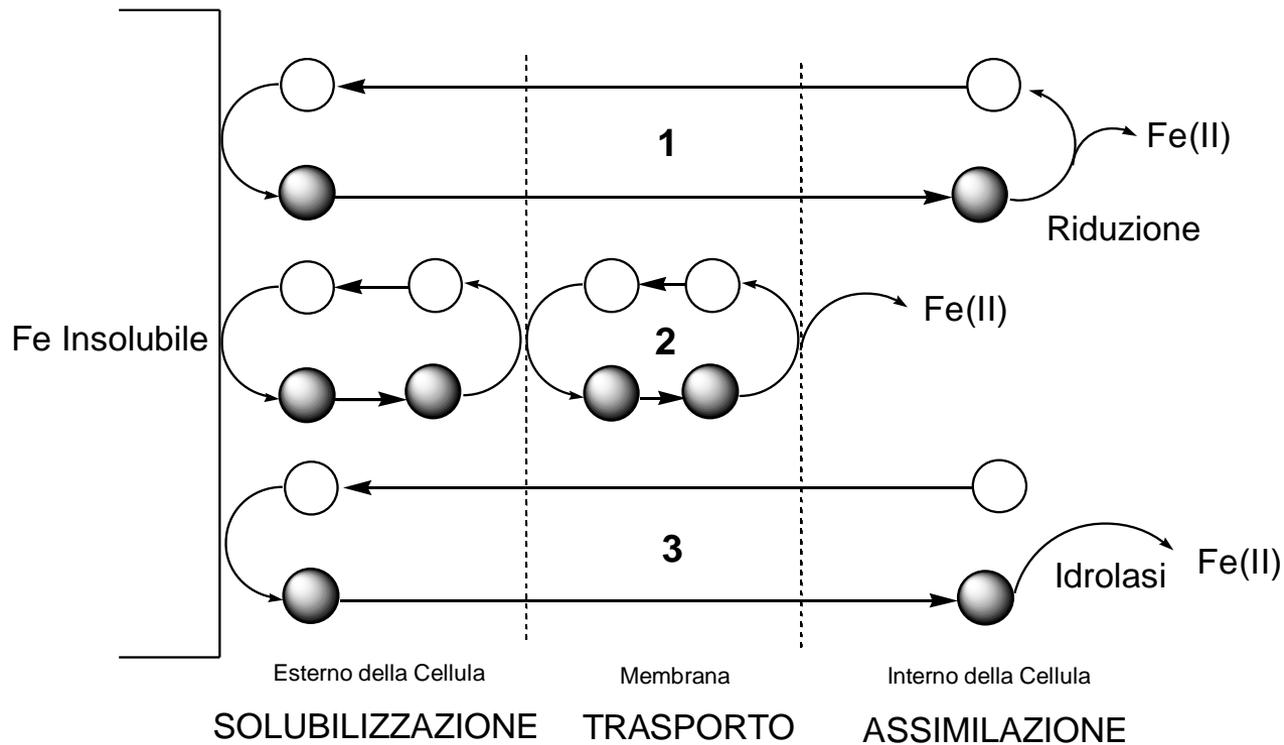
Enterobactina

Fe(III) alto spin



Complesso V(IV)-enterobactina

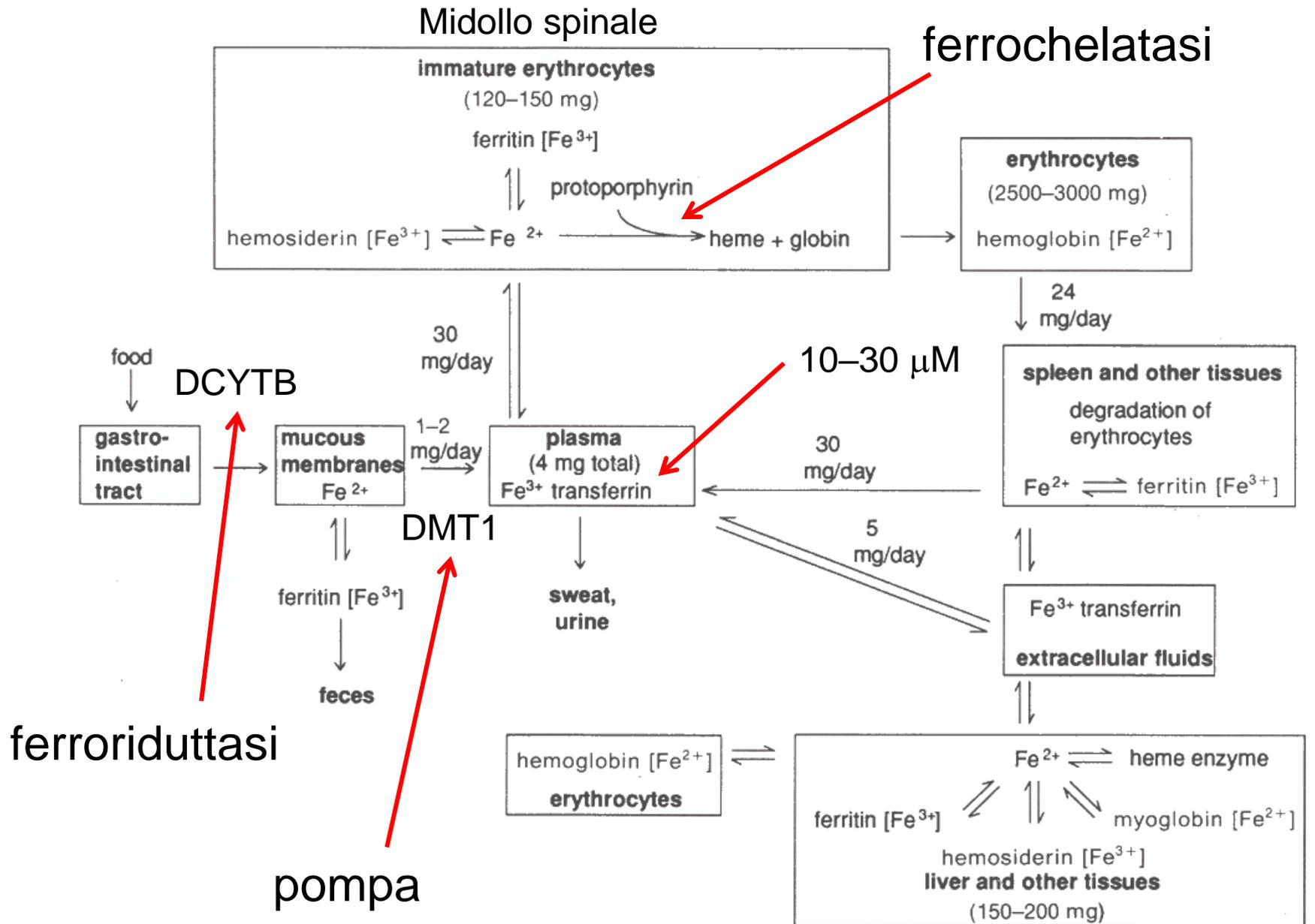
Δ

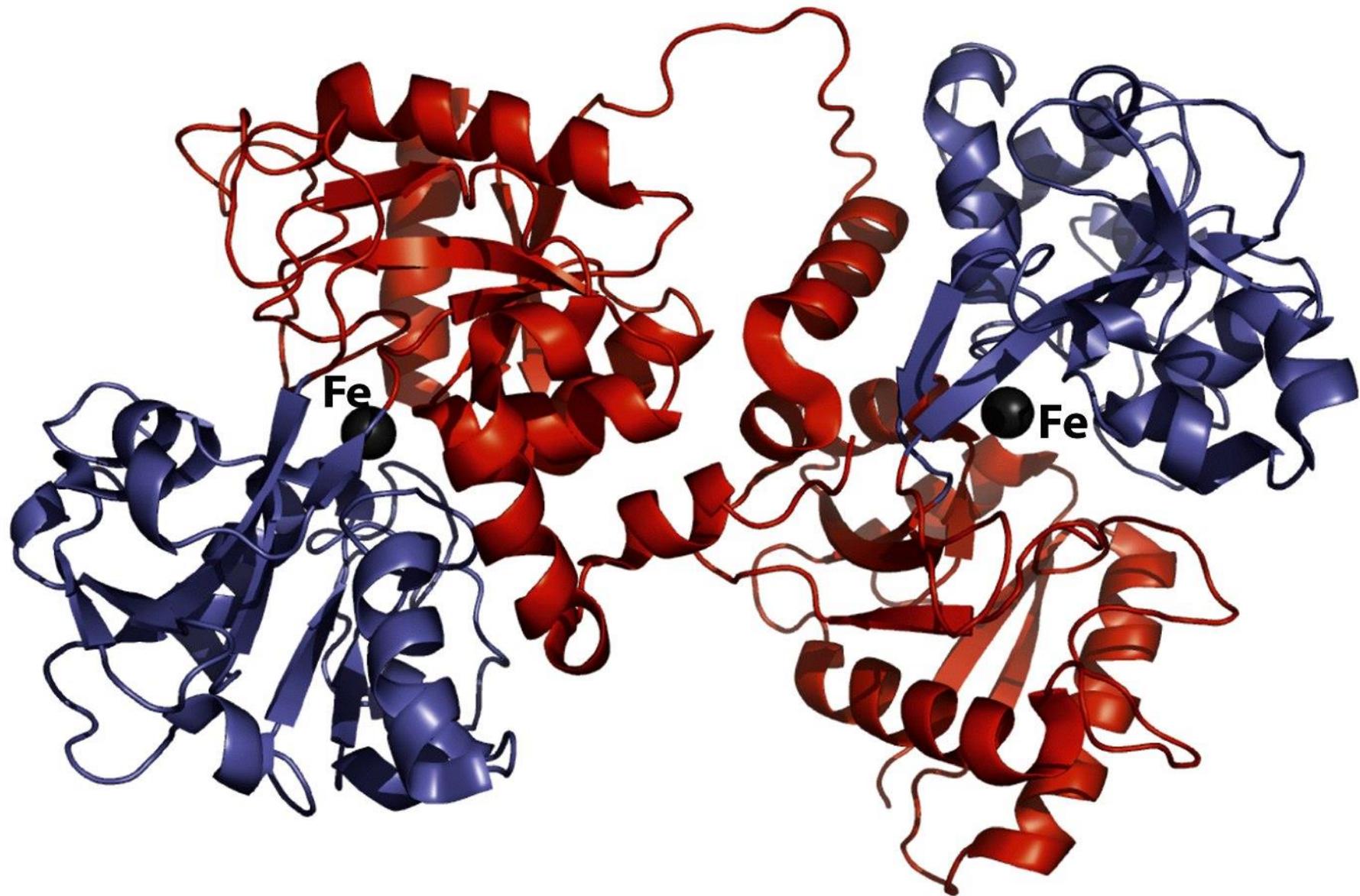


ferricrome

desferriossamina

enterobactina

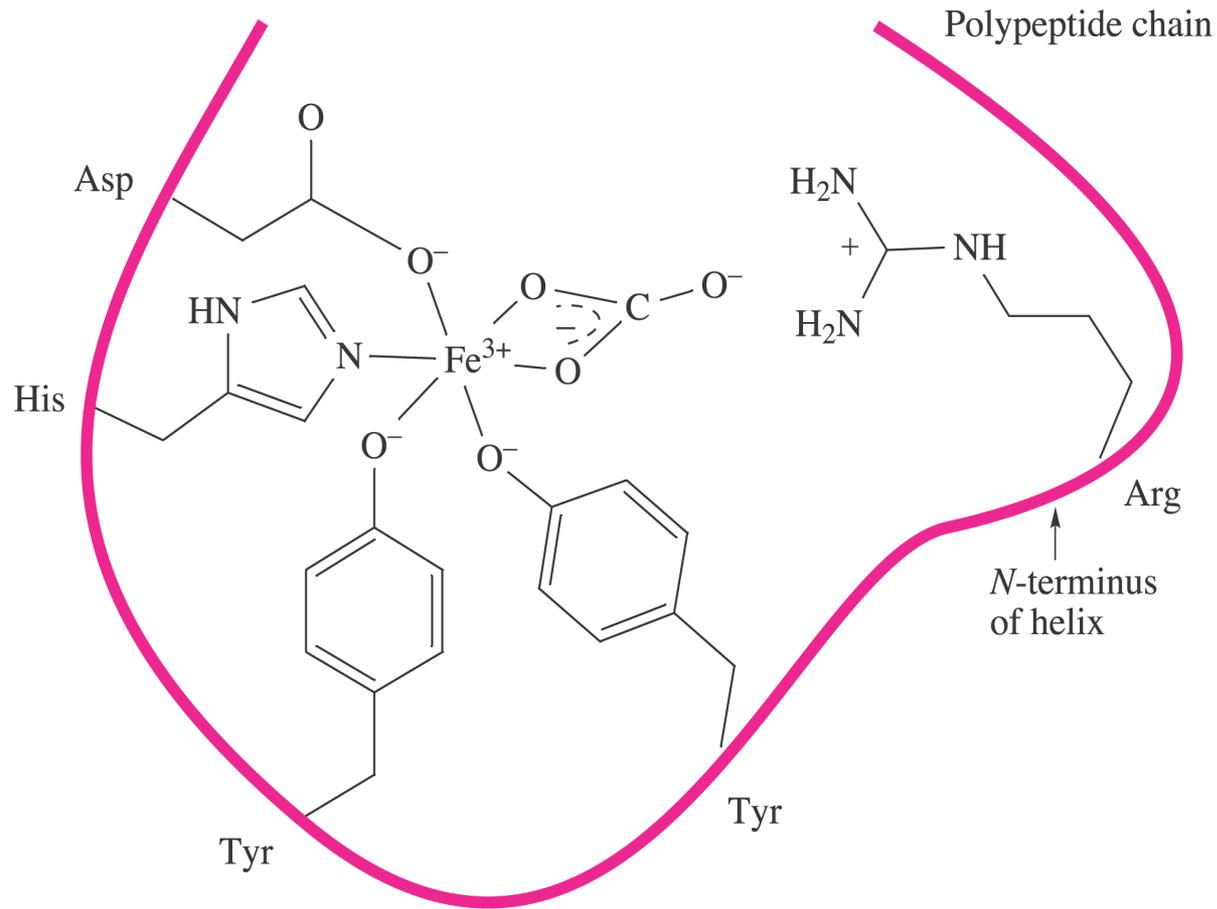


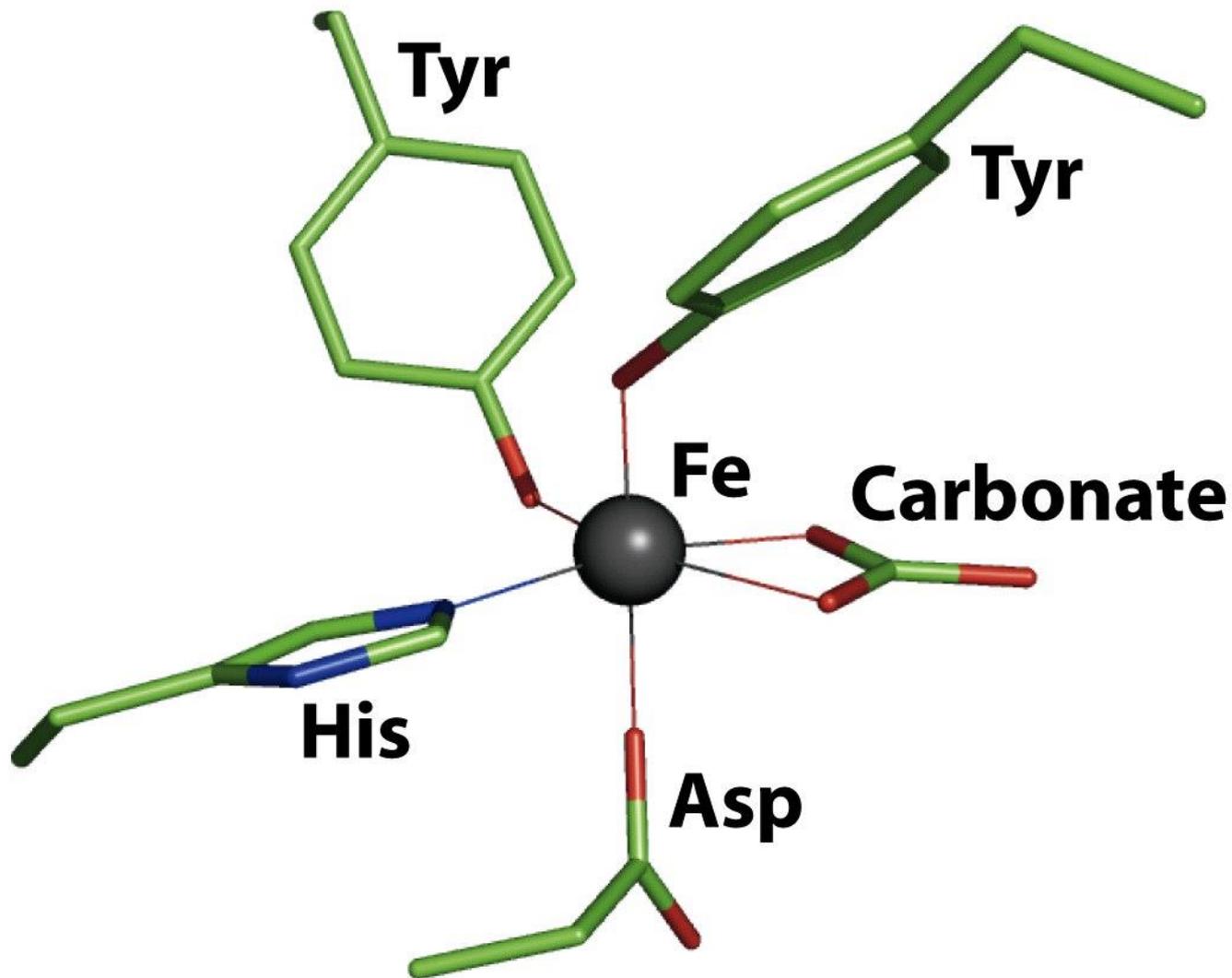


Transferrina

80 kDa

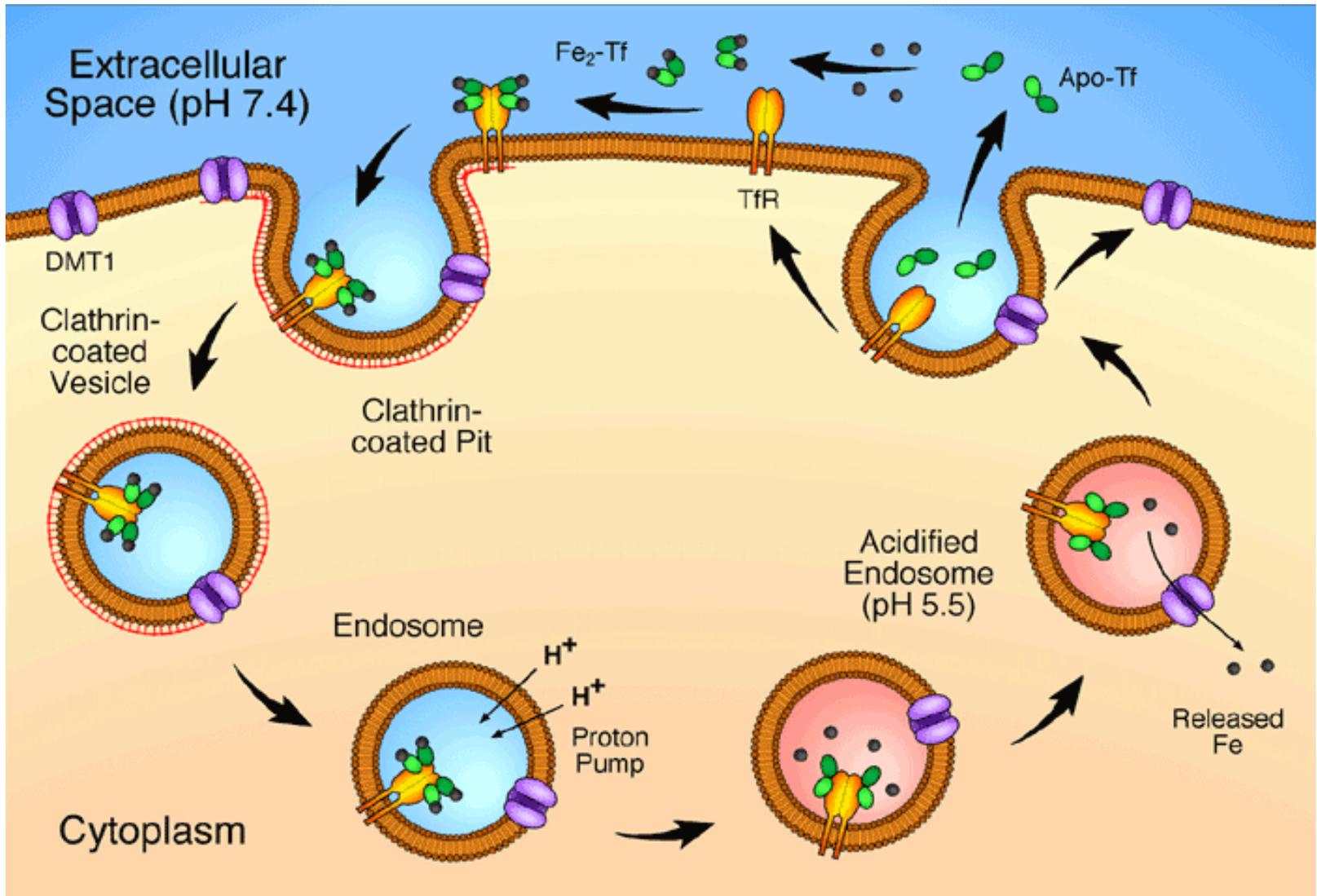
Sito di coordinazione del Fe nella transferrina



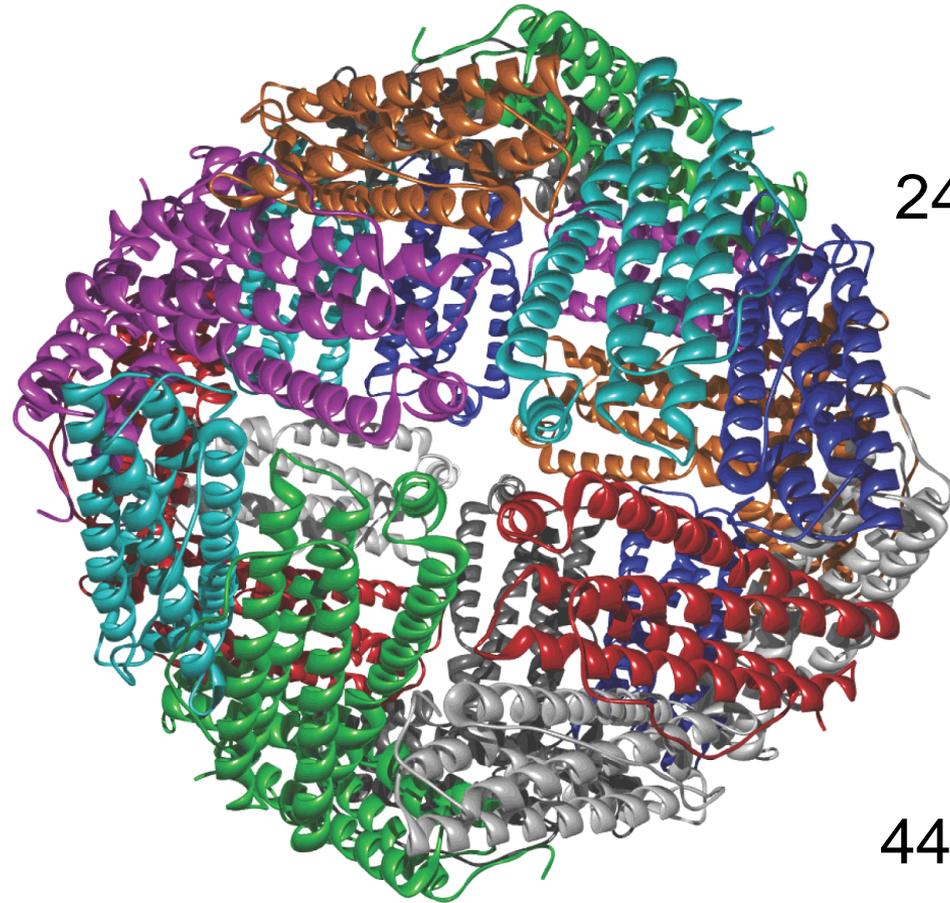
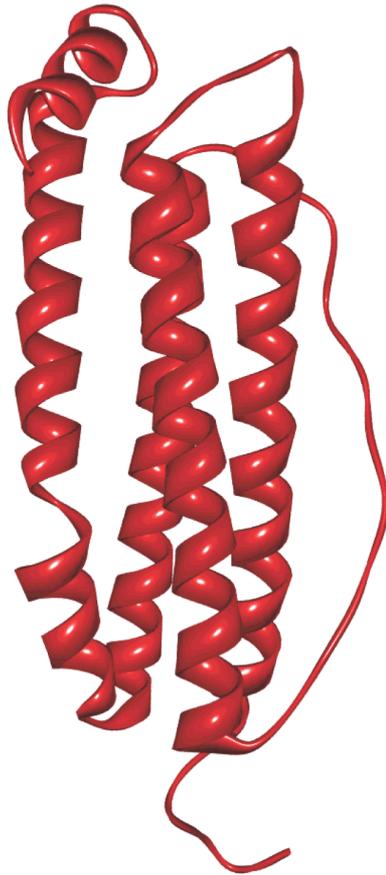


Sito di coordinazione del Fe nella transferrina

Ciclo della transferrina



Ferritina



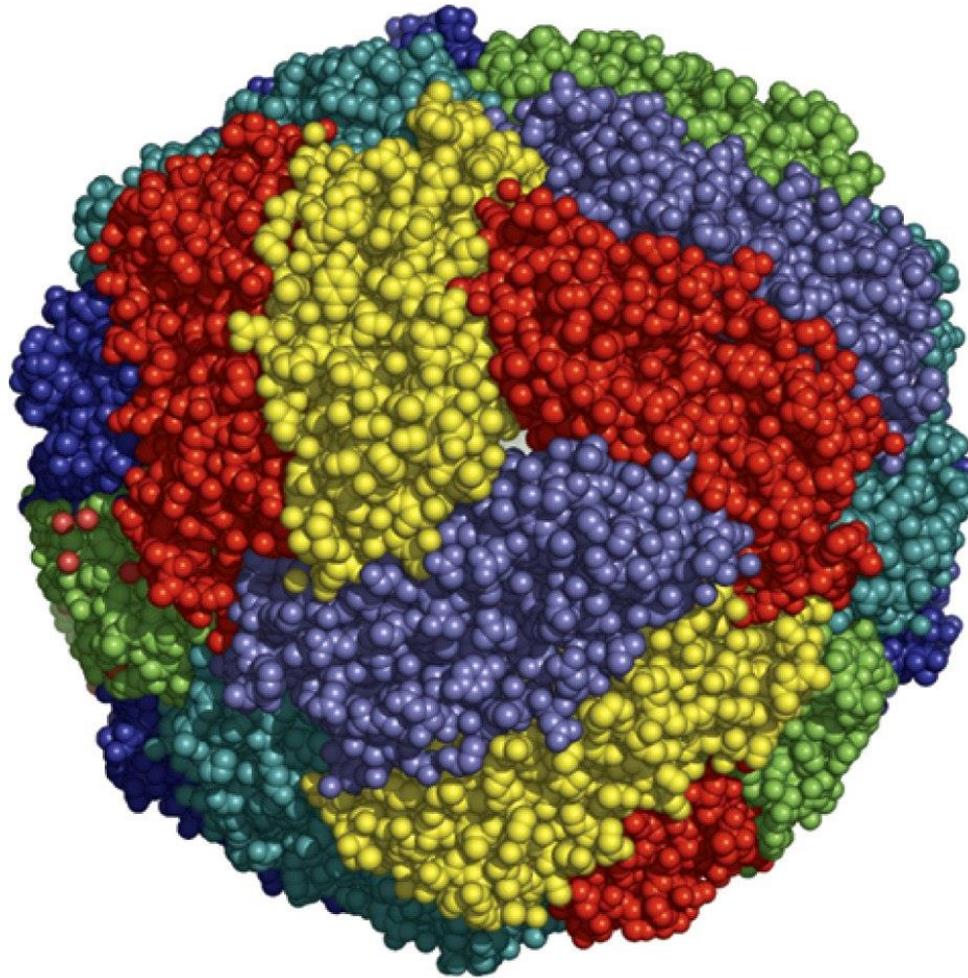
24 unità

440 kDa

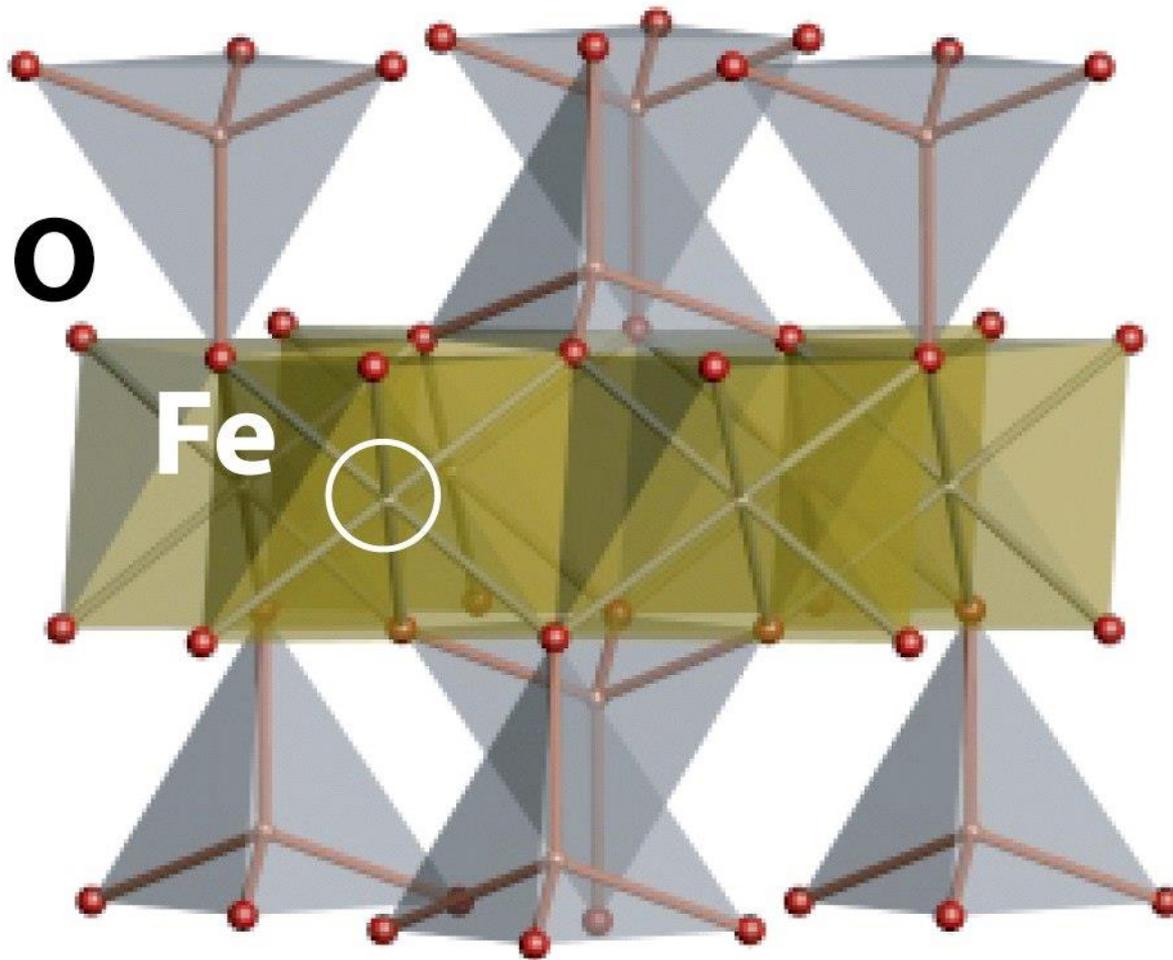
8 pori idrofilici con simmetria ternaria (*Fe in*)

6 pori idrofobici con simmetria quaternaria (*Fe out*)

In, 7.5nm



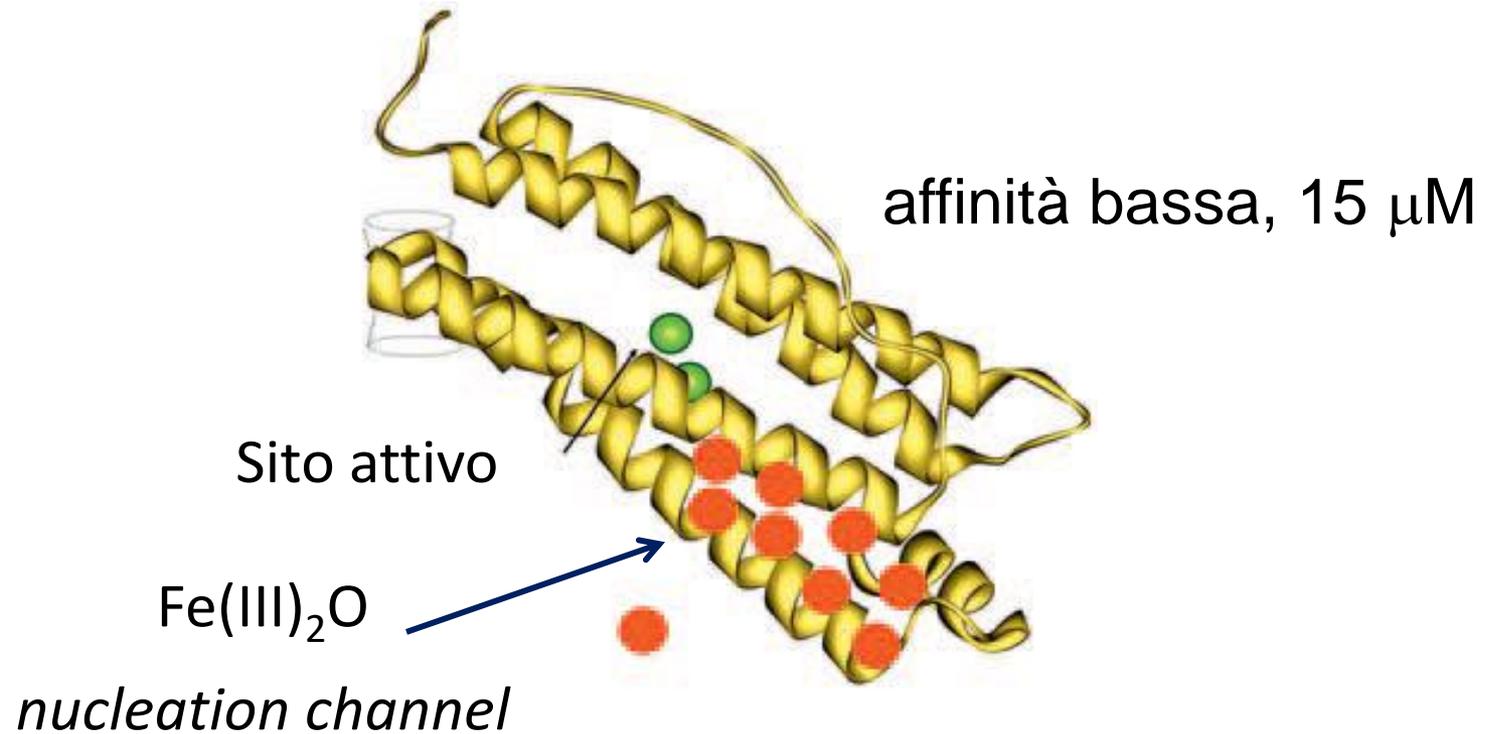
Out, 12 nm



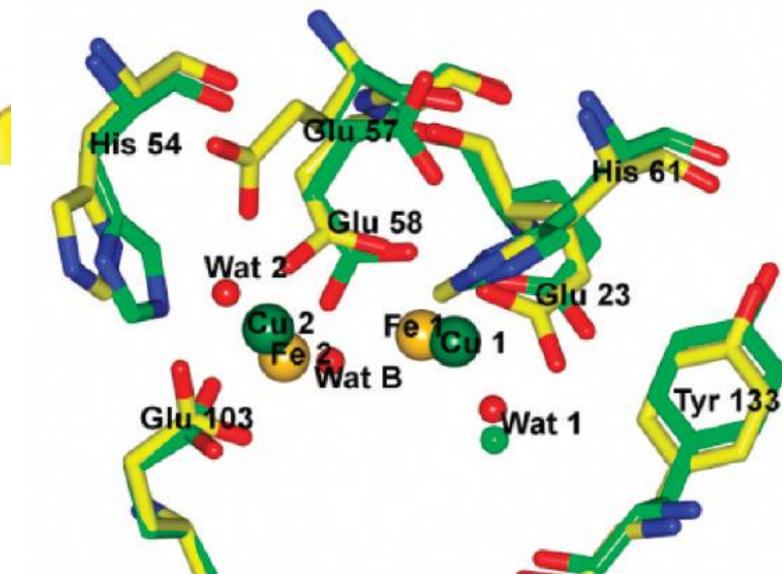
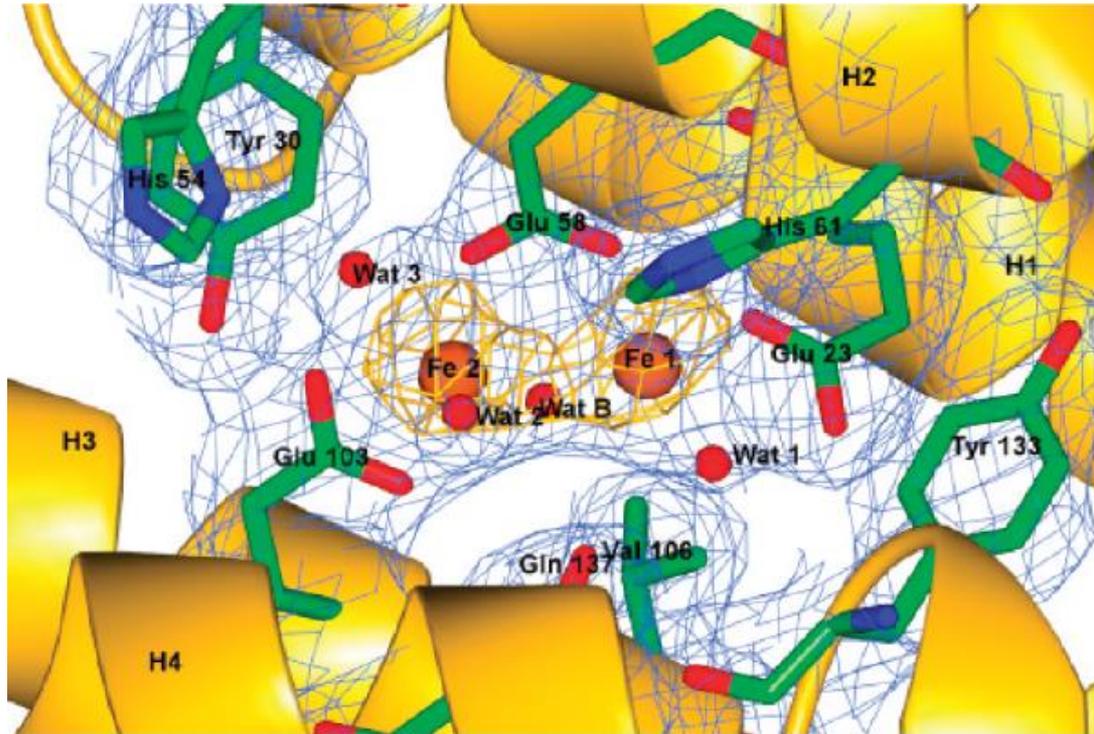
Ferrihydrite

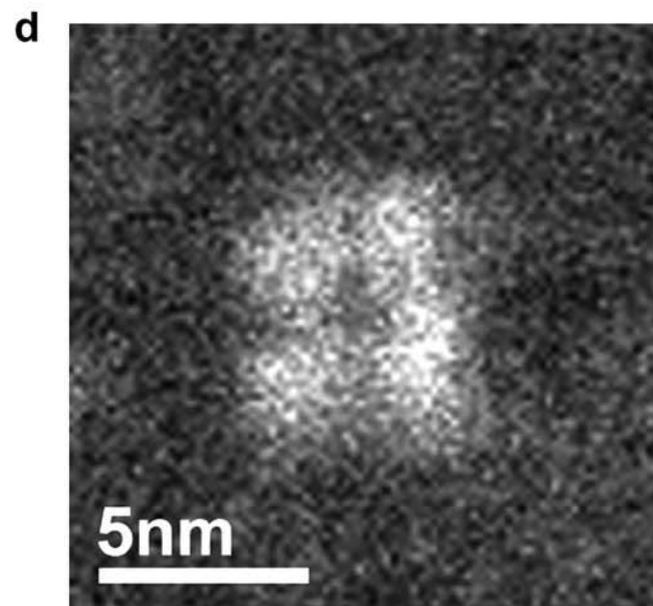
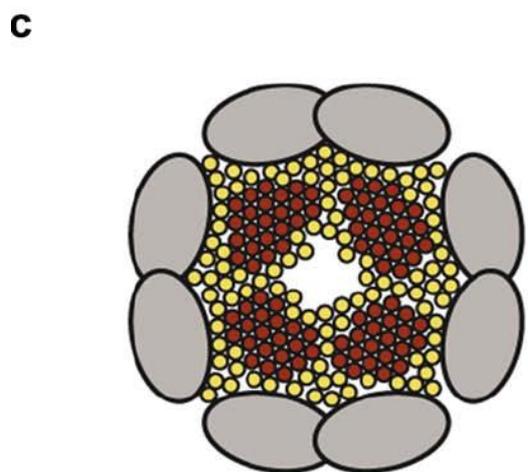
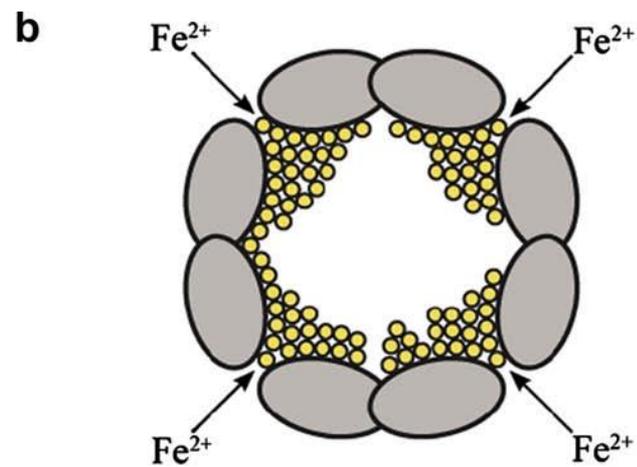
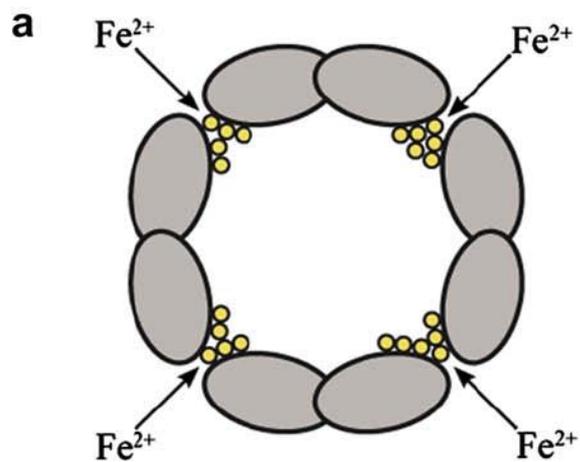
Fino a 4500 atomi di Fe

sito ferrossidasico



Struttura ai raggi X di un sito ferrossidasico

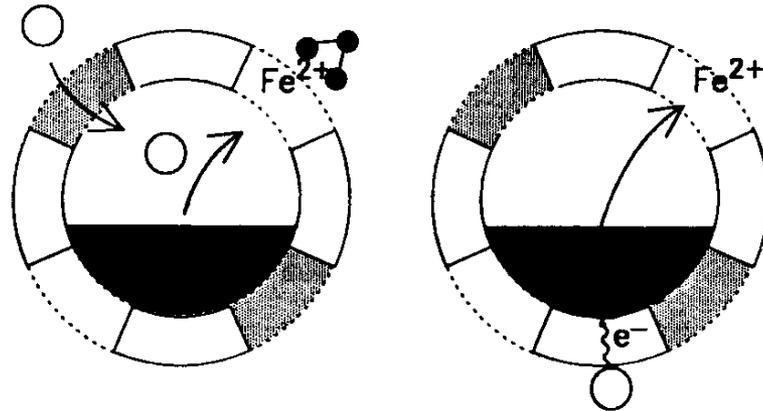




Imagine
TEM

-  Fe^{3+} coordinated to O and OH
-  Fe^{3+} in ferrihydrate crystal structure
-  Protein shell sub-unit

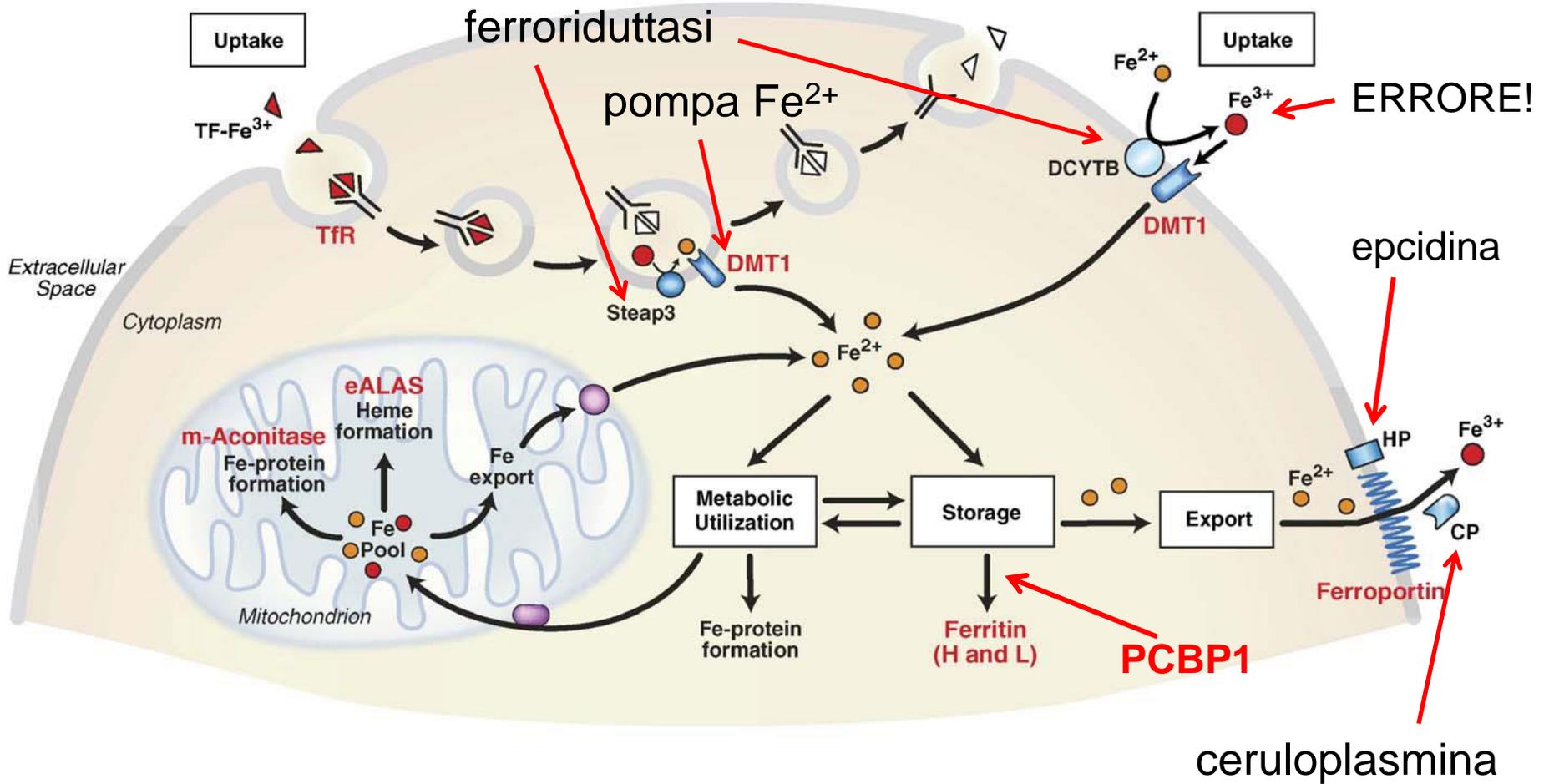
Rilascio del ferro



○ : reductant

Y : chelating agent

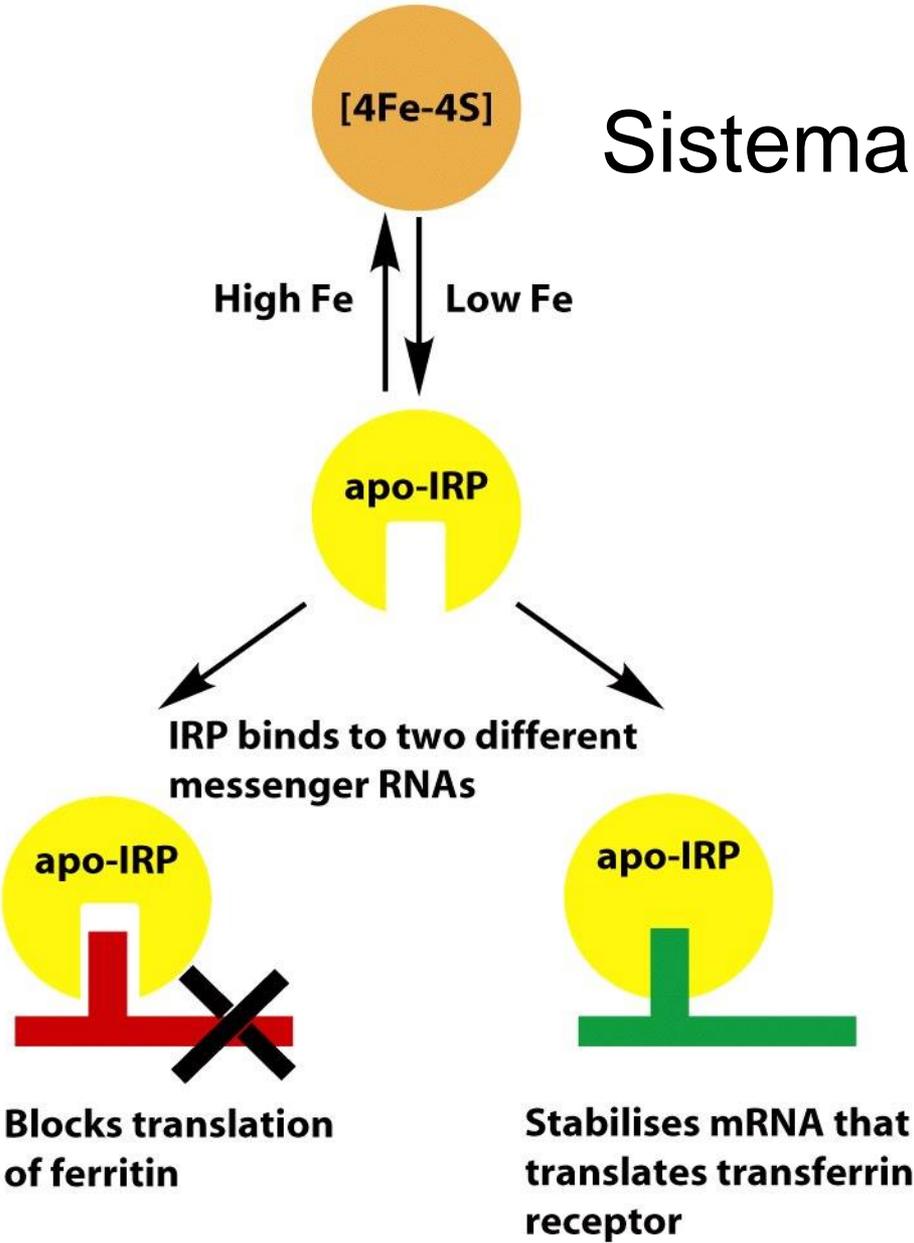
Omeostasi del ferro – Sistema IRP/IRE



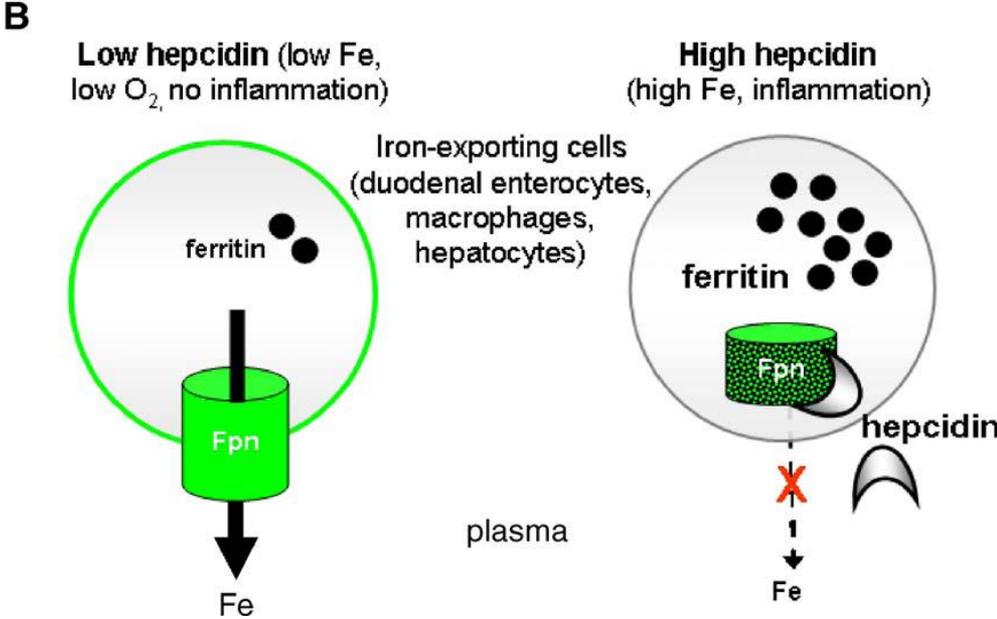
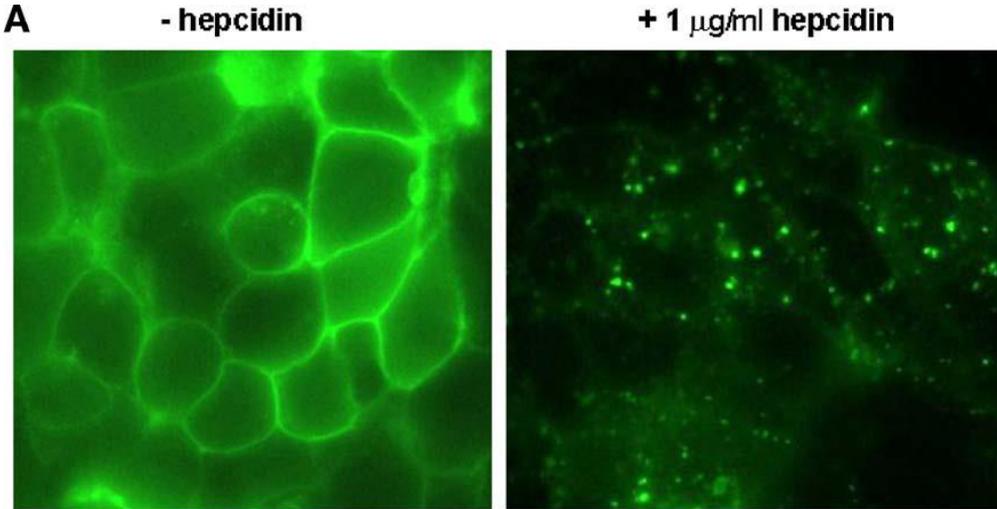
IRP: Iron Regulatory Proteins

IRE: Iron Responsive Elements (mRNA)

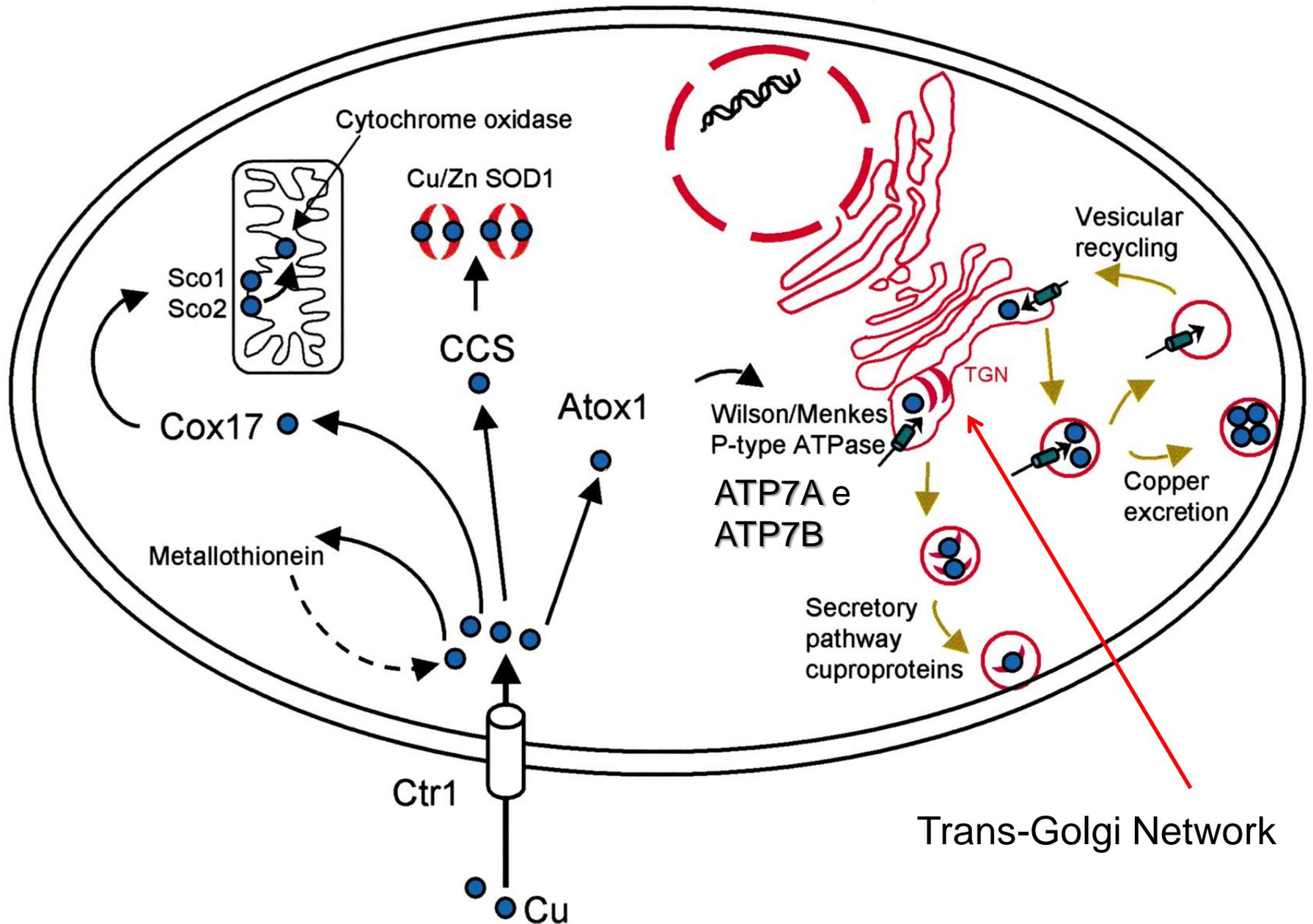
Sistema IRP/IRE

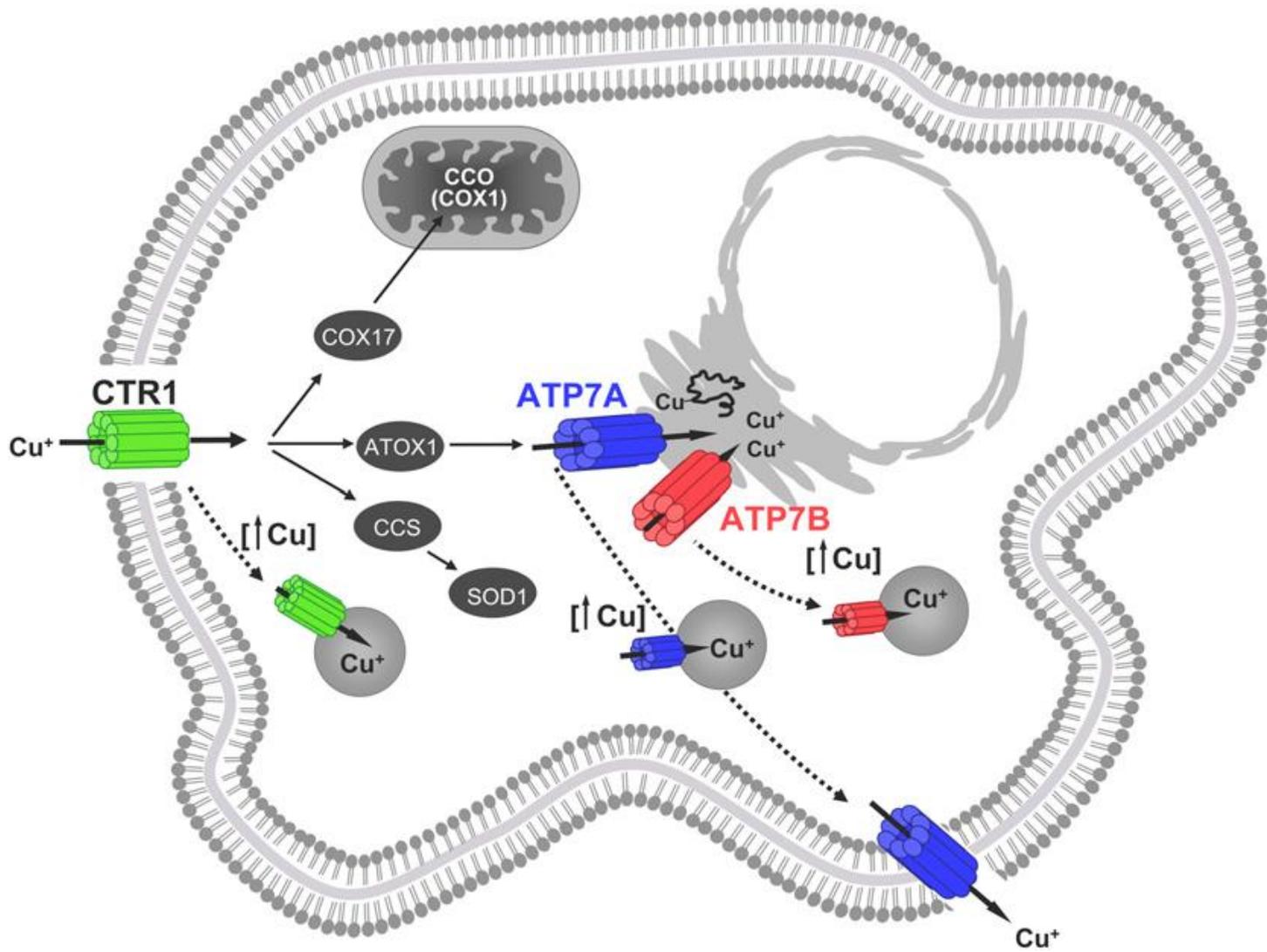


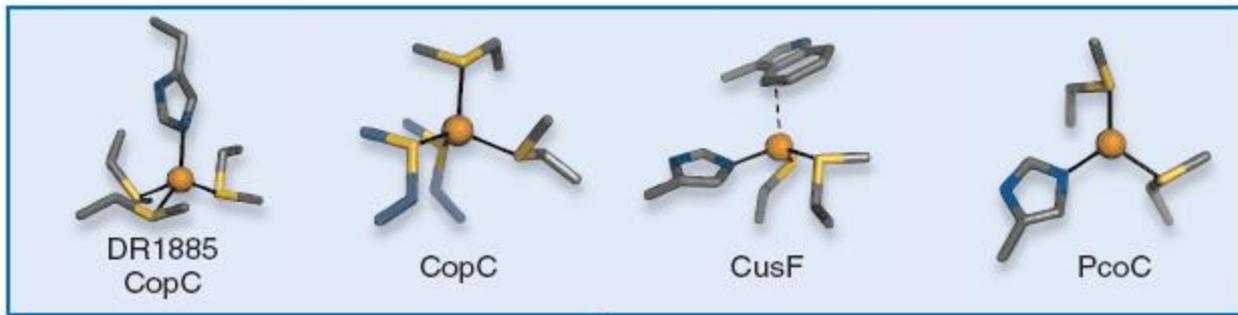
Export del ferro nel plasma regolato da epcidina



Omeostasi del rame

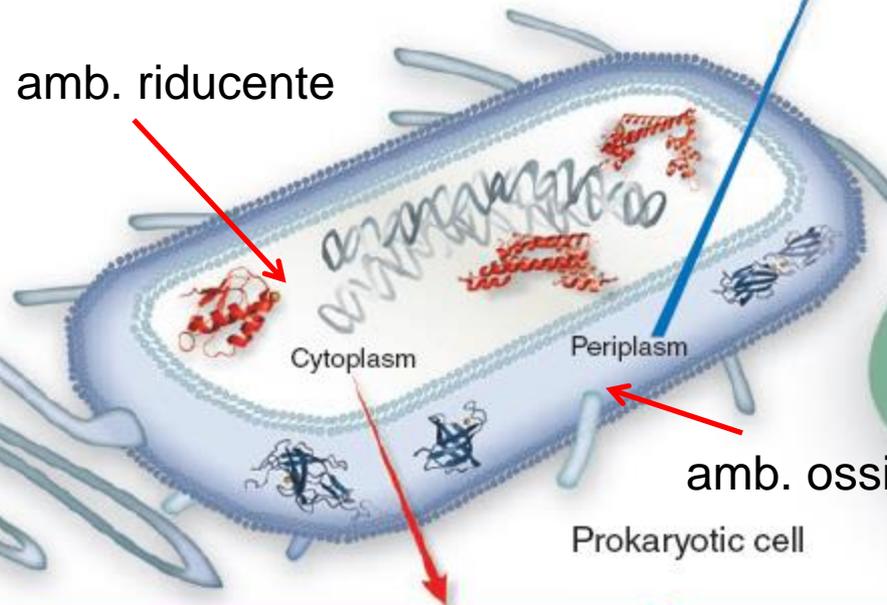






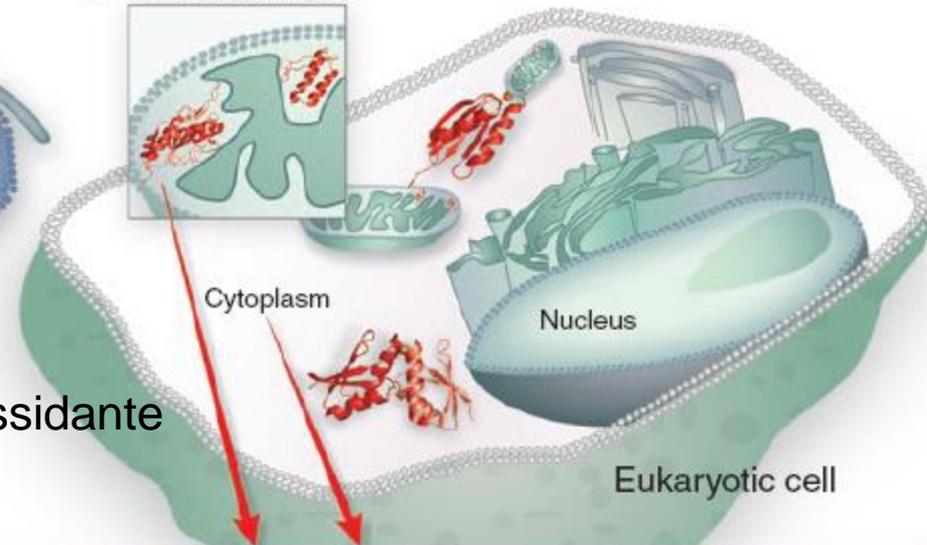
a

amb. riducente



b

Detail, mitochondrion



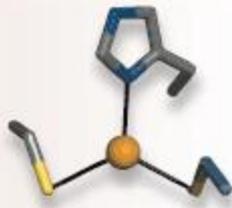
amb. ossidante

Prokaryotic cell

Eukaryotic cell



CopZ
CueR



CsoR



Atx1, Hah1
Ccc2, Mnk, Wnd
Cox17

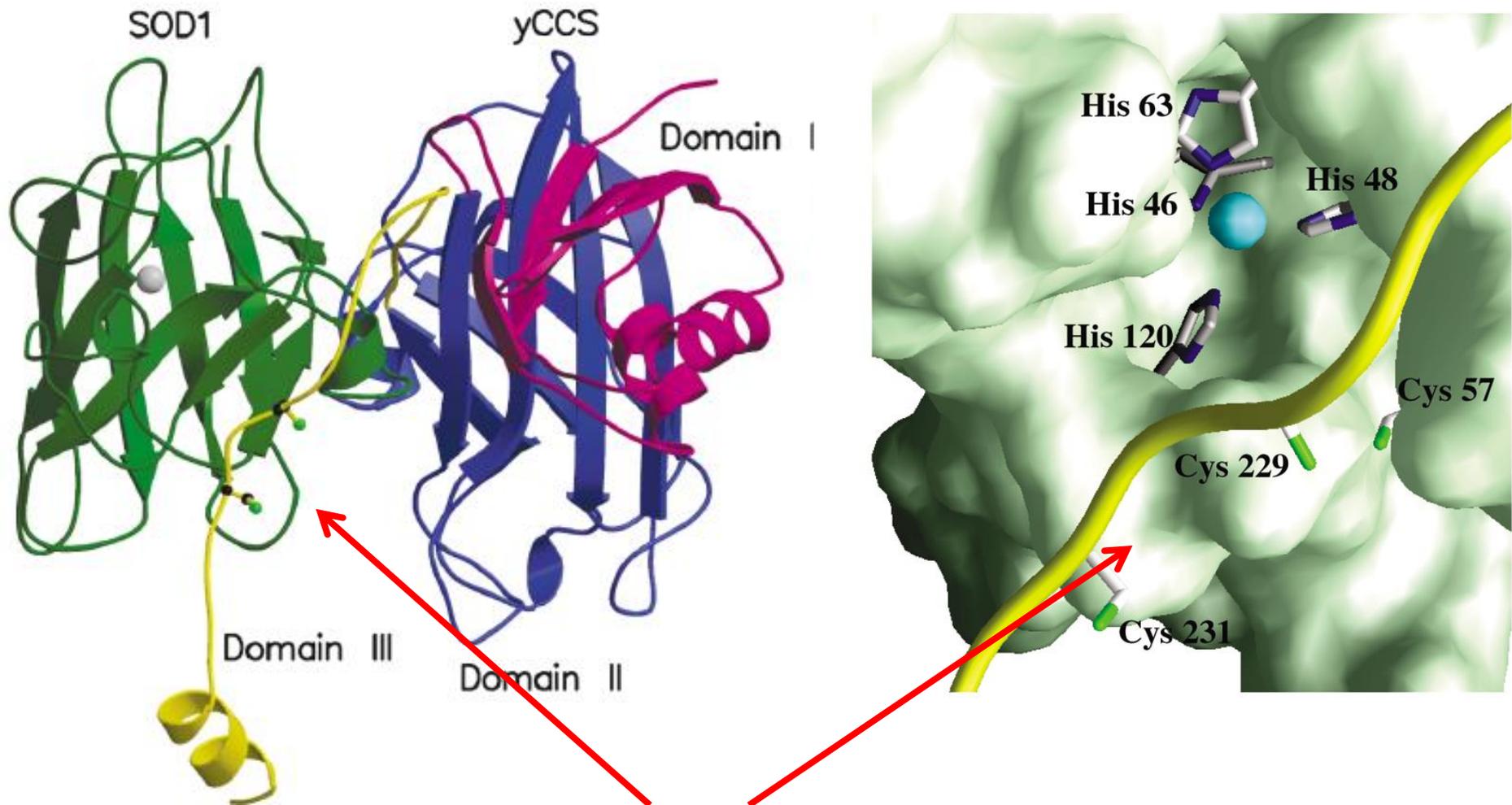


Hah1



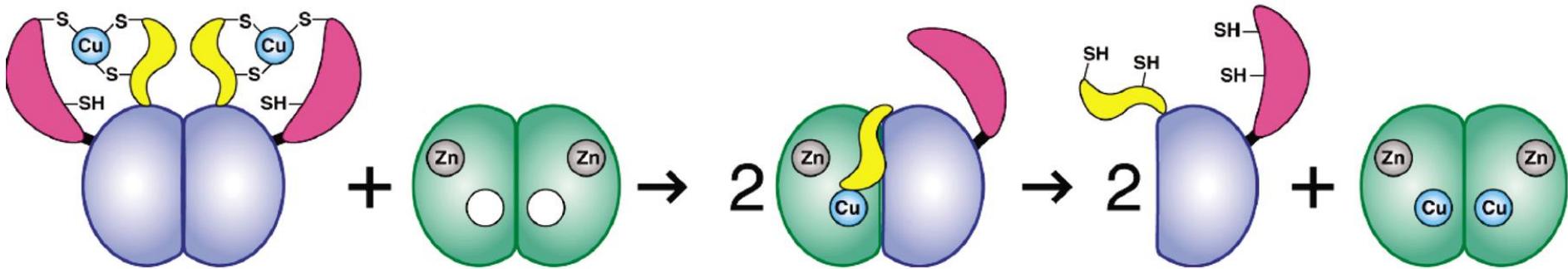
Sco1

CCS/Zn-SOD

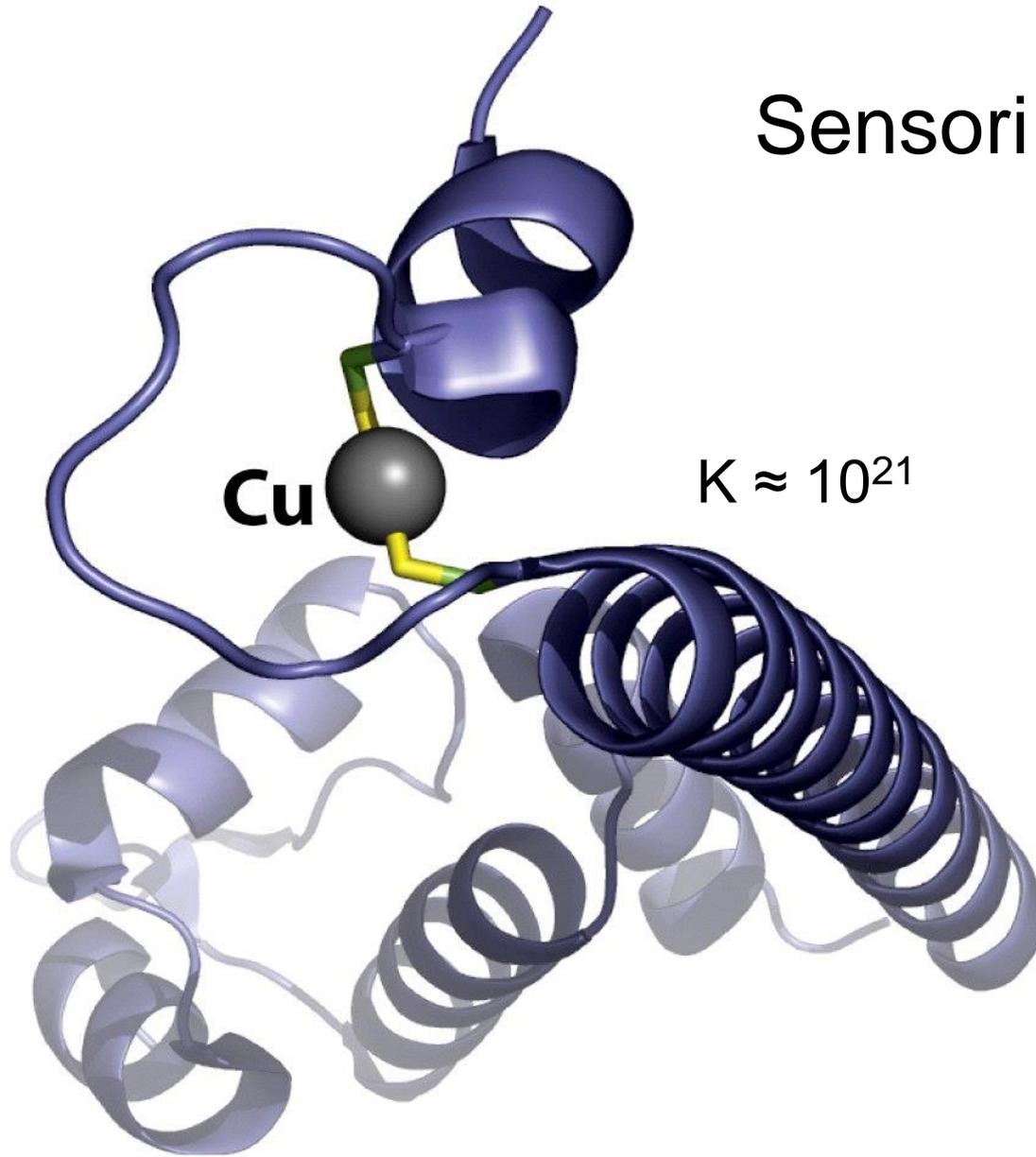


Sito di binding del Cu(I)

CCS/Zn-SOD



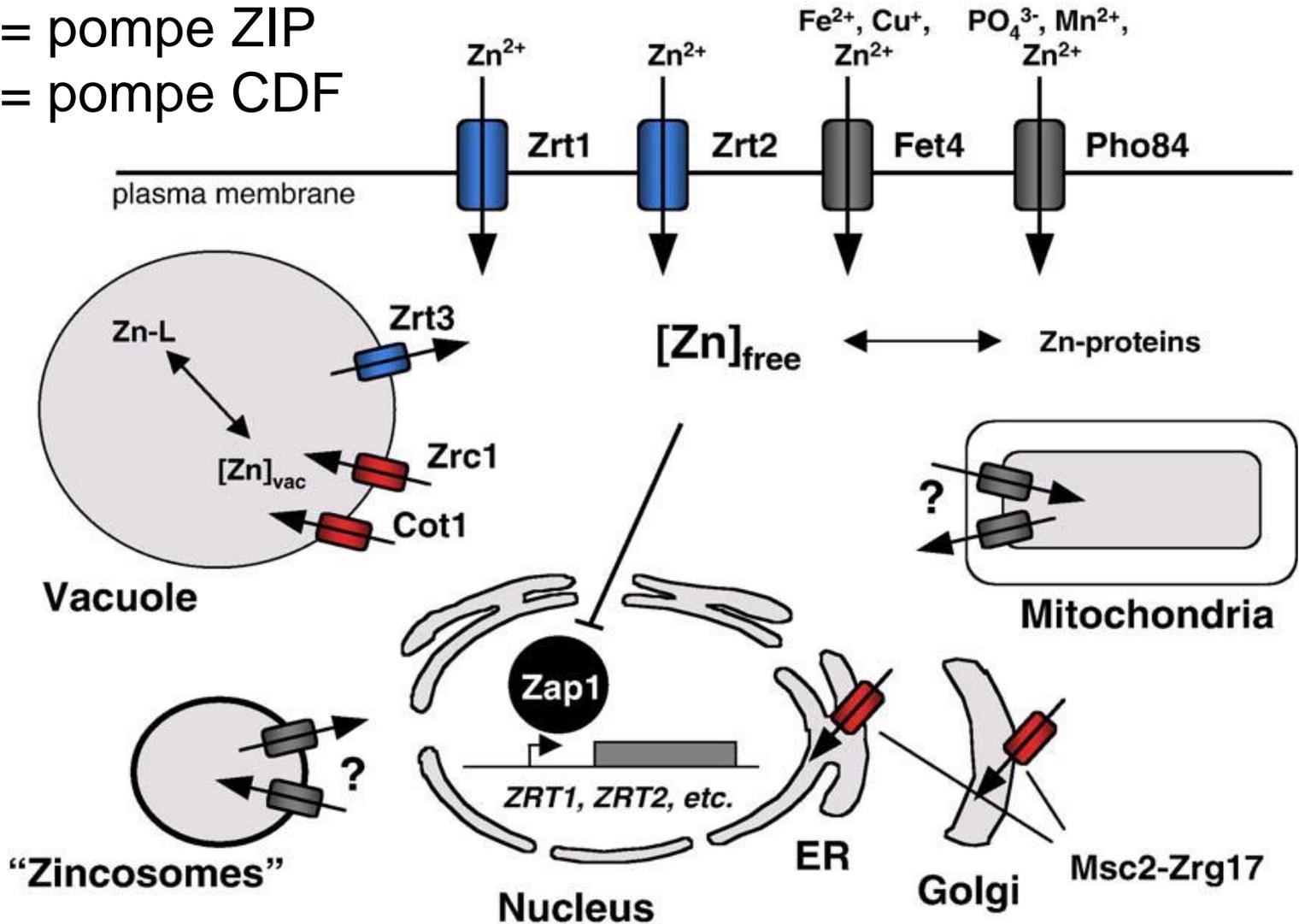
Sensori del Cu



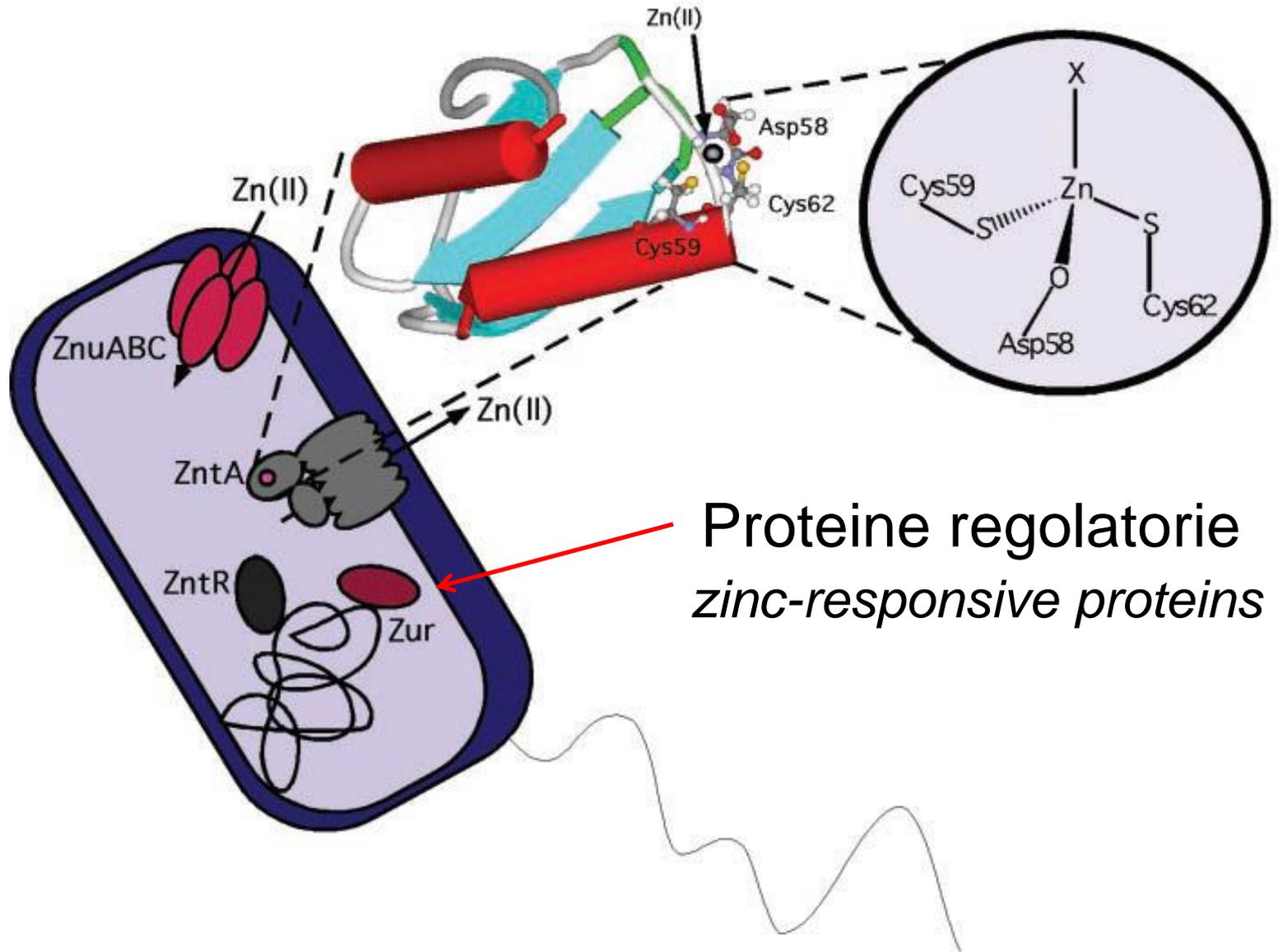
Fattore di trascrizione CueR (da *E. Coli*)

Omeostasi dello zinco in cellule eucariote

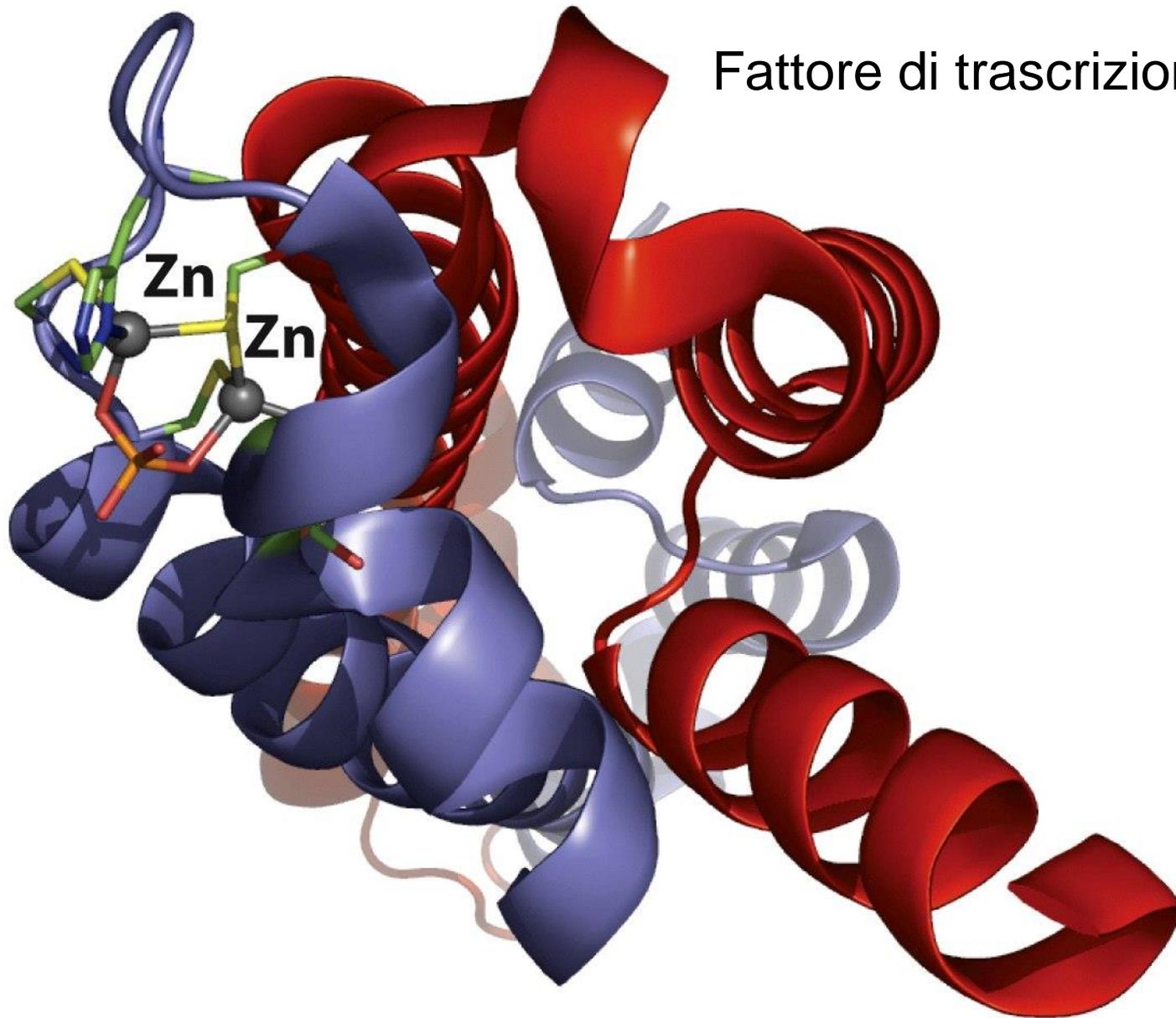
- = pompe ZIP
- = pompe CDF



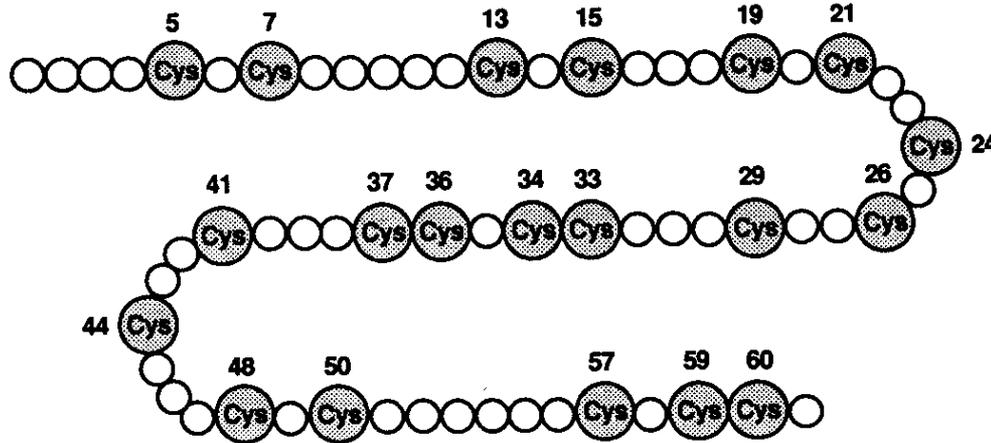
Omeostasi dello zinco nei batteri



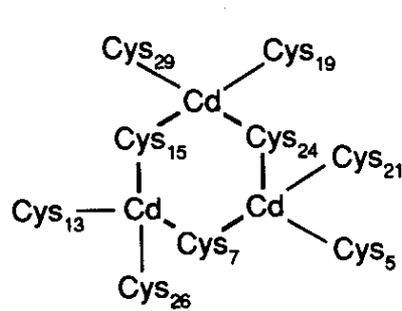
Fattore di trascrizione ZntR



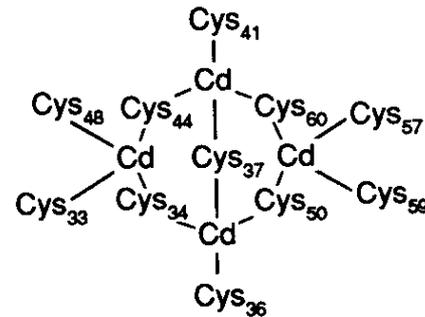
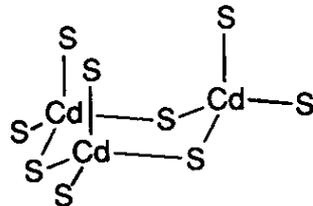
Metallotioneine



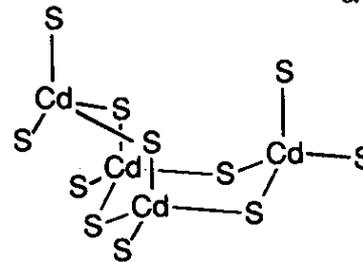
6 kDa,
ca. 60 a.a.
fino 30% cys



β



α



Metallotioneine

