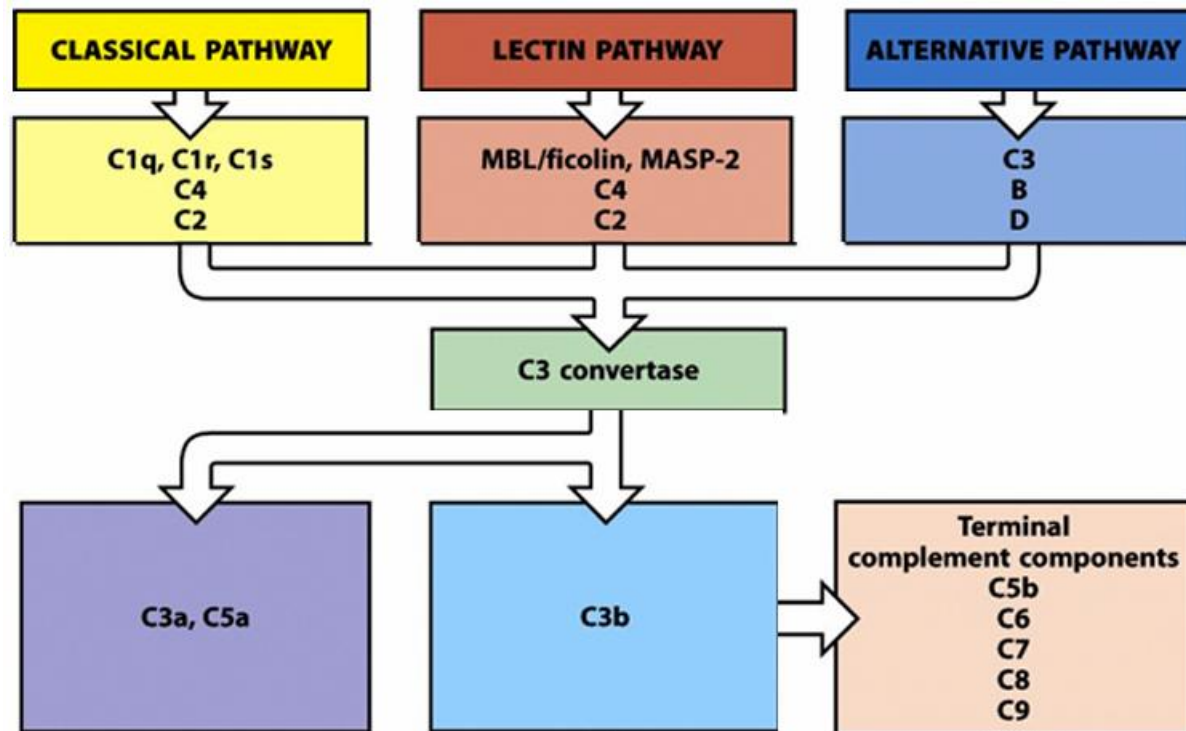


Systeme du Complément

Introduction

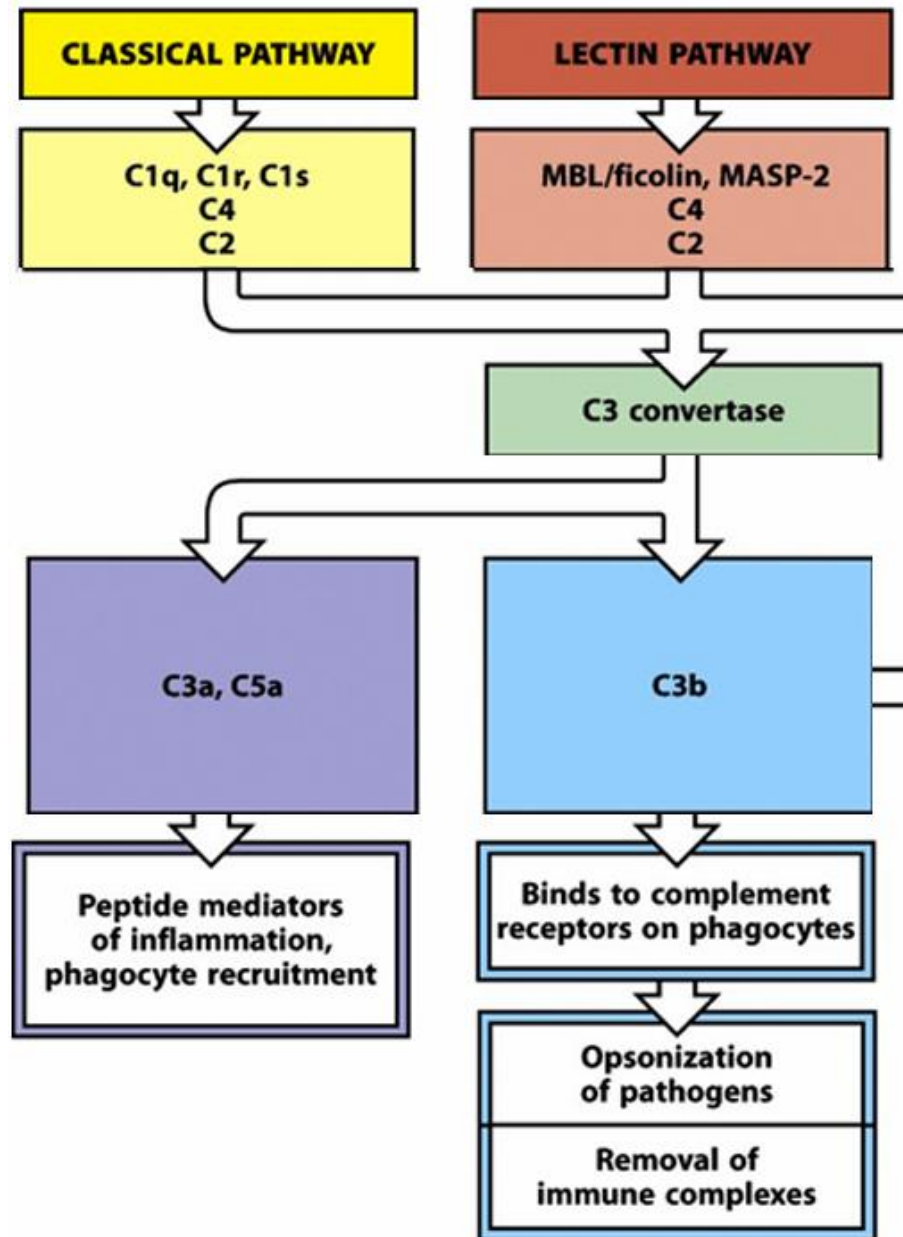
- Plus d'une 30aines à 50aines de molécules solubles (~5% prot plasmatiques)
& membranaires
- Réponse immunitaire innée & adaptative
- Implication dans l'inflammation, mais aussi phagocytose, neutralisation des virus, élimination du complexe Ag-Ac, présentation de l'Ag
- Monocytes & macrophages; foie et intestin
- Plusieurs sont des zymogènes

Voies du complément

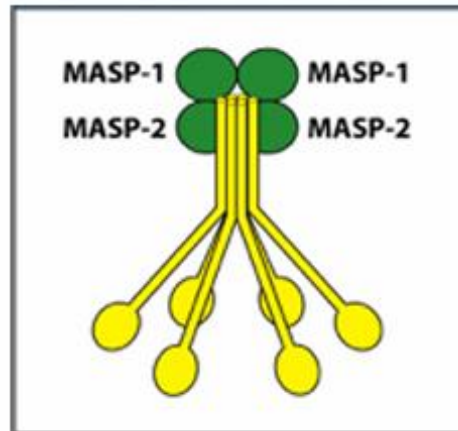
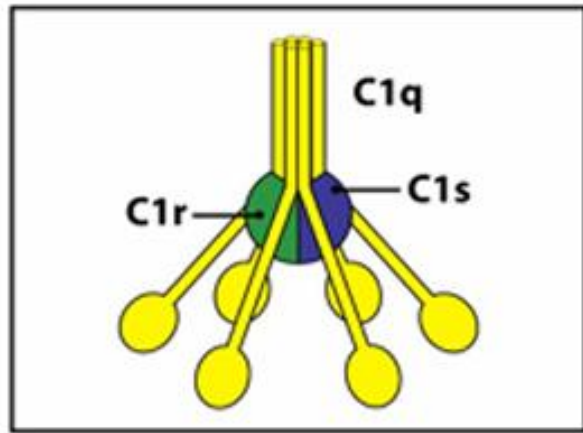


- **Classique** : Liaison du C1q, surface des pathogènes ou mAb, dépendante du Ca^{2+} Structure Polyanionique / Prot C réactive
- **Lectine** : Déclencher par le MBL Liaison du de C1q, surface des pathogènes ou mAb Mannose / N-acetylglucosamine Prot C réactive
- **Alternative** : Liaison du C3, surface des pathogènes, dépendante du Mg^{2+}

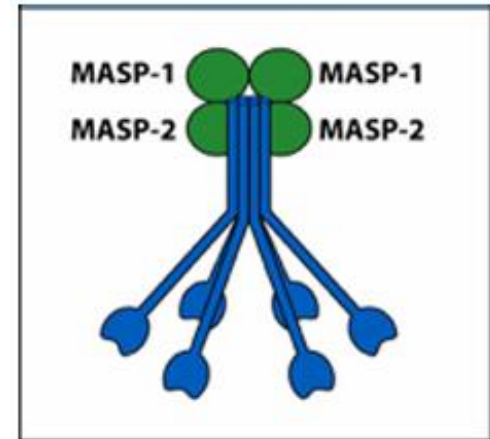
Voies Classique et lectines



Voies Classique et lectines

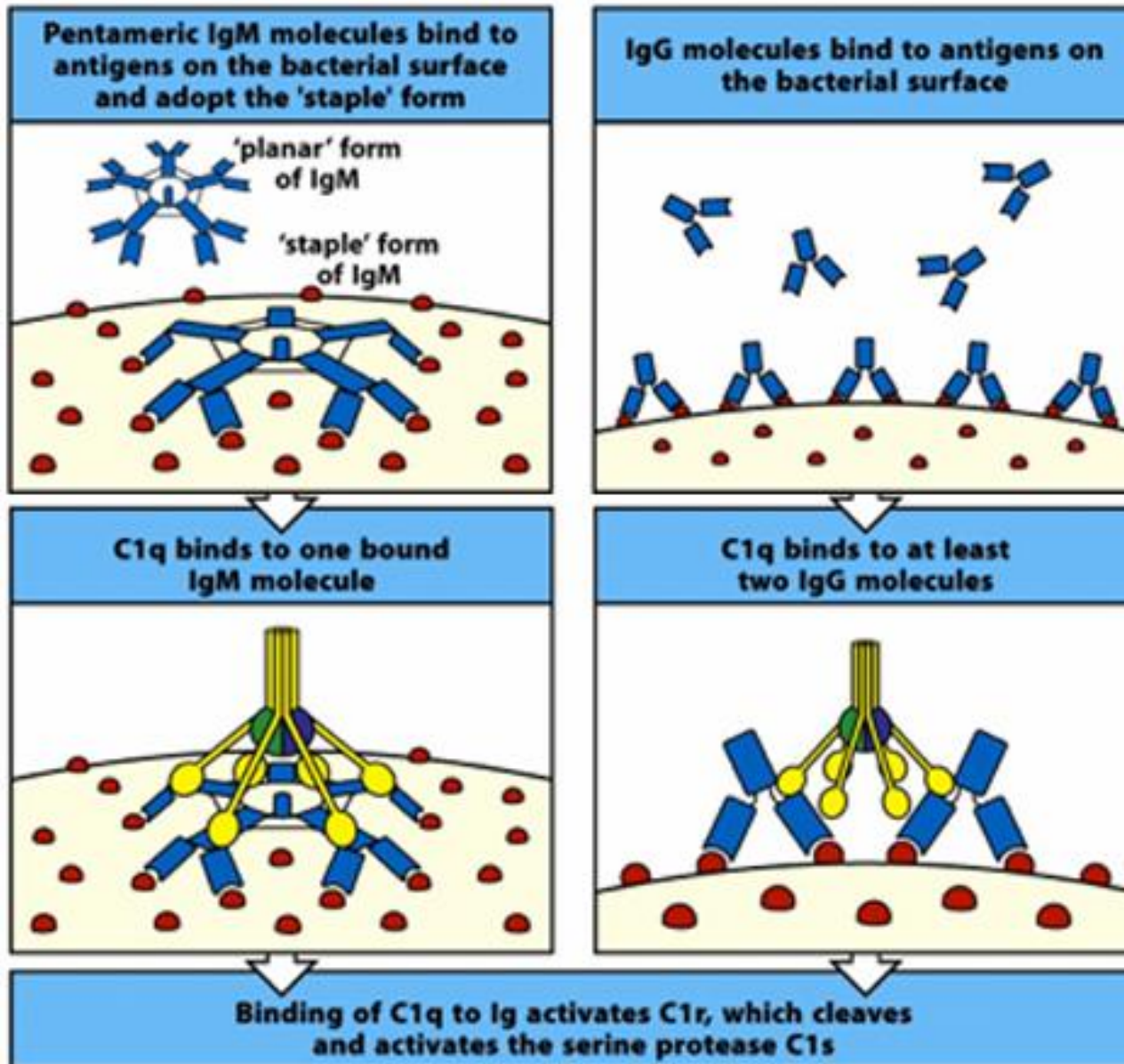


MBL: Domaine de liaison de type *Lectine*

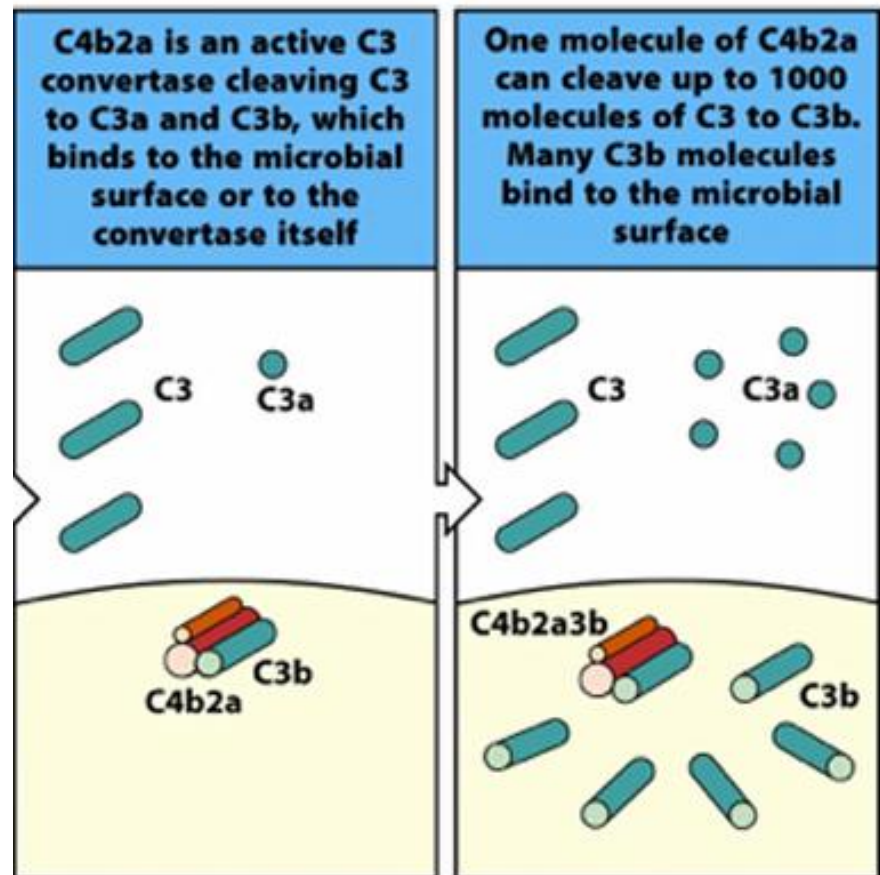
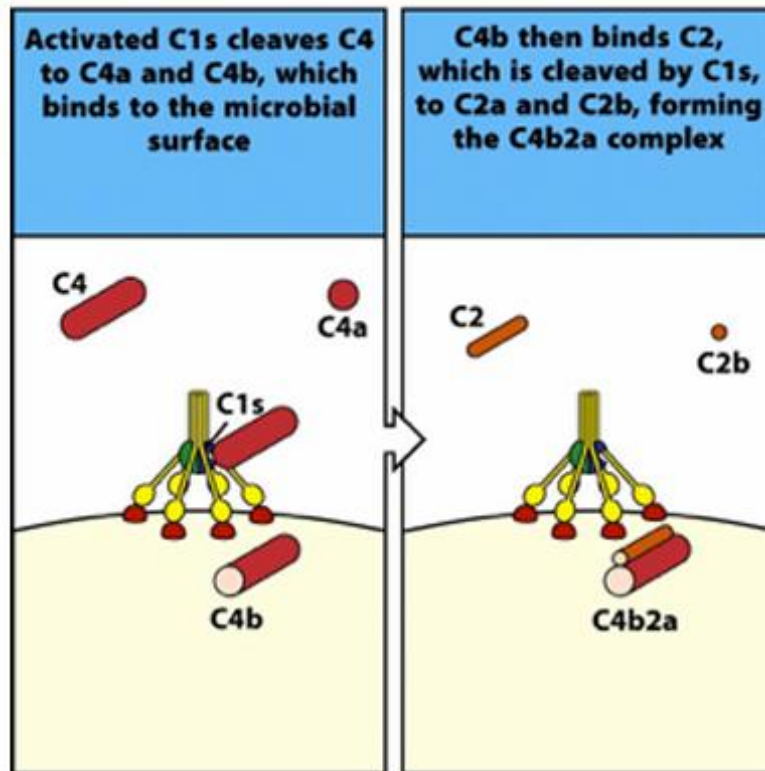


Ficoline: Domaine de liaison de type *Fibrinogène*

Voies Classique et lectines

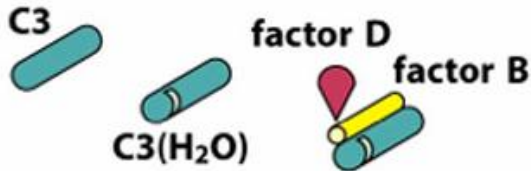


Voies Classique et lectines

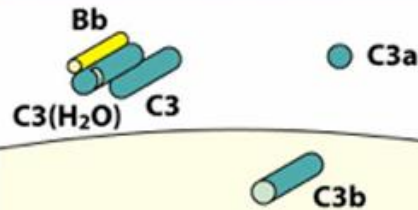


Voie Alternative

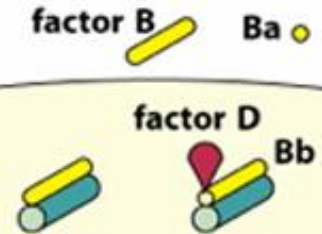
C3 undergoes spontaneous hydrolysis to C3(H₂O), which binds to factor B allowing it to be cleaved by factor D into Ba and Bb



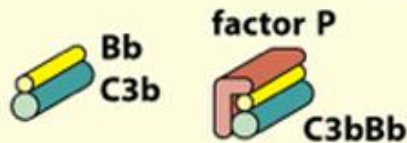
The C3(H₂O)Bb complex is a C3 convertase, cleaving more C3 into C3a and C3b. C3b is rapidly inactivated unless it binds to cell surface



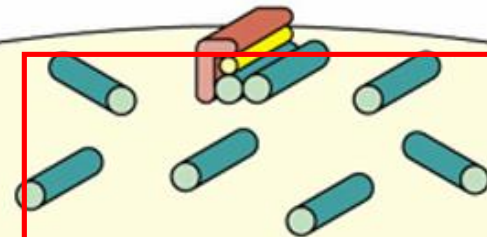
Factor B binds noncovalently to C3b on a cell surface and is cleaved to Bb by factor D



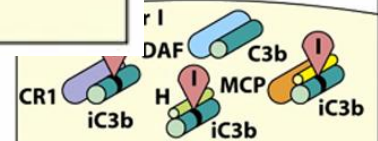
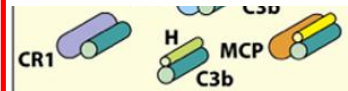
Pathogens lack complement-regulatory proteins. Binding of properdin (factor P) stabilizes the C3bBb complex



C3bBb complex is a C3 convertase and deposits many molecules of C3b on the pathogen surface

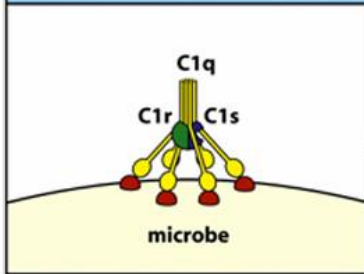


Factor I cleaves C3b to H, CR1, and MCP. Factor I cleaves C3b by factor I to yield inactive C3b (iC3b)

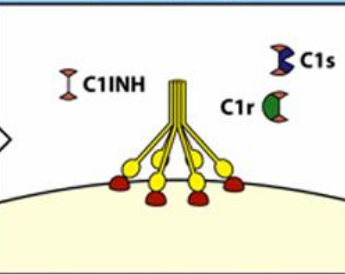


Régulation du système du complément

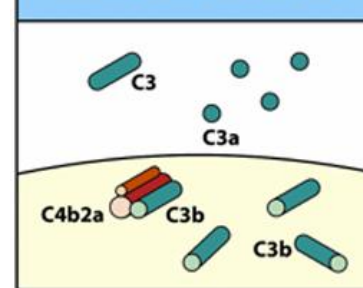
C1q binding to antigen:antibody complexes activates C1r and C1s



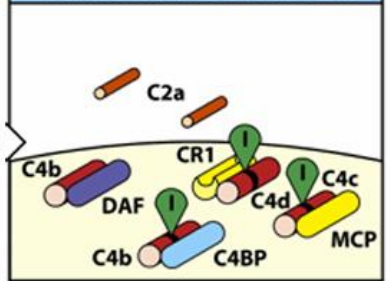
C1 inhibitor (C1INH) dissociates C1r and C1s from the active C1 complex



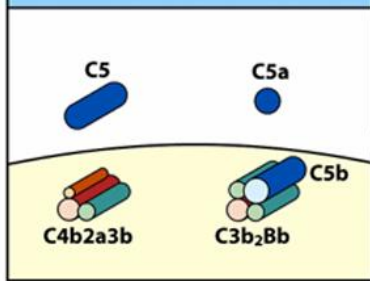
C4b2a is the active C3 convertase, cleaving C3 to C3a and C3b



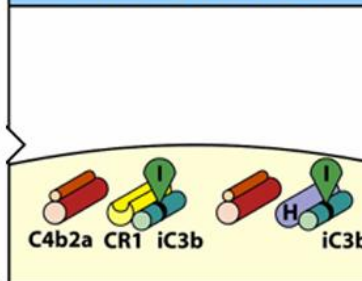
DAF, C4BP, and CR1 displace C2a from the C4b2a complex. C4b bound by C4BP, MCP, or CR1 is cleaved by a soluble protease I to inactive forms C4d and C4c



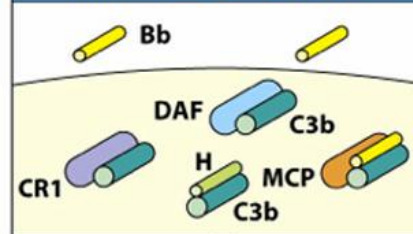
The C5 convertases cleave C5 to C5a and C5b



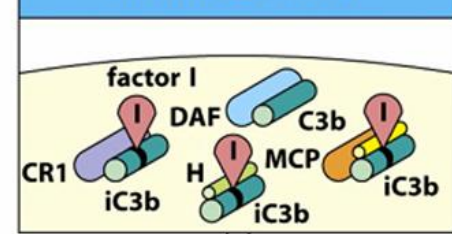
CR1 and H displace C3b. CR1 and H act as cofactors in the cleavage of C3b by I



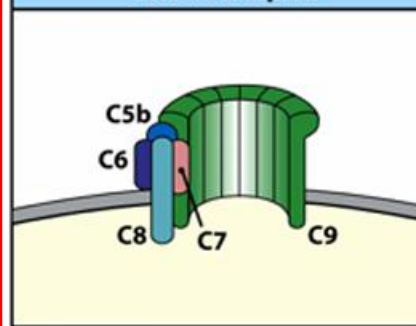
On host cells, complement-regulatory proteins CR1, H, MCP, and DAF bind to C3b. CR1, H, and DAF displace Bb



C3b bound to H, CR1, and MCP is cleaved by factor I to yield inactive C3b (iC3b)



The terminal components of complement form a membrane pore—the membrane-attack complex



CD59 prevents final assembly of the membrane-attack complex at the C8 to C9 stage

