

# Das zuckersüße Komplement

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Biochemie

*Karriereforum*

16.10.2015

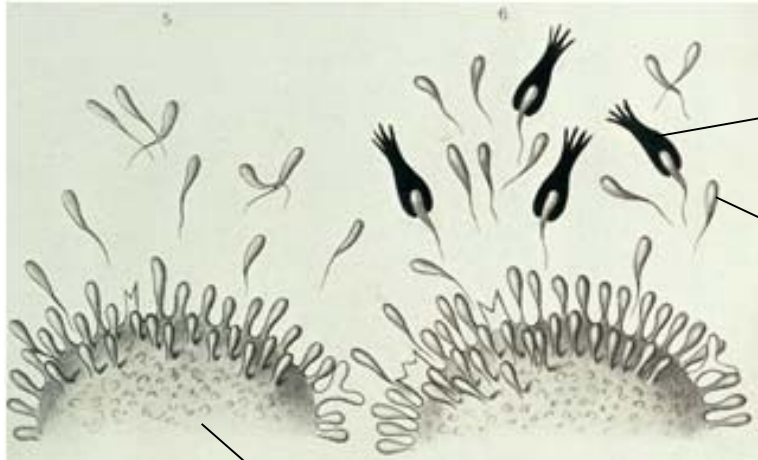


EBERHARD KARLS  
UNIVERSITÄT  
TÜBINGEN



# Was ist das Komplementsystem?

**Paul Ehrlich**  
Seitenkettentheorie

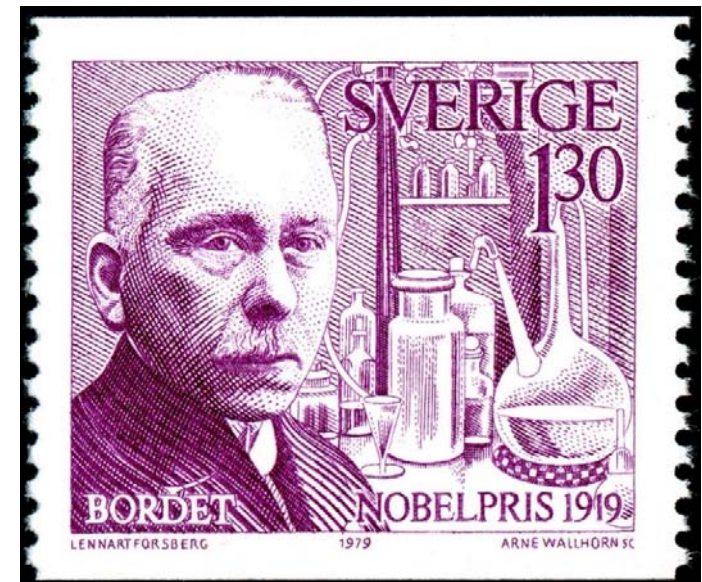


*Toxin (Antigen)*

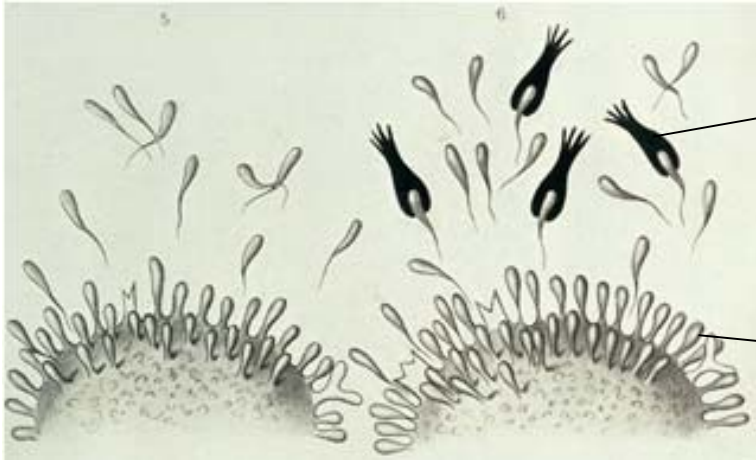
*Rezeptor oder Anti-toxin (Antikörper)*

Immunzelle

**Jules Bordet**  
Hitze-unbeständiger Serumteil unterstützt die Blutzellen  
-> *Alexine* (Bordet) oder *Komplement* (Ehrlich)



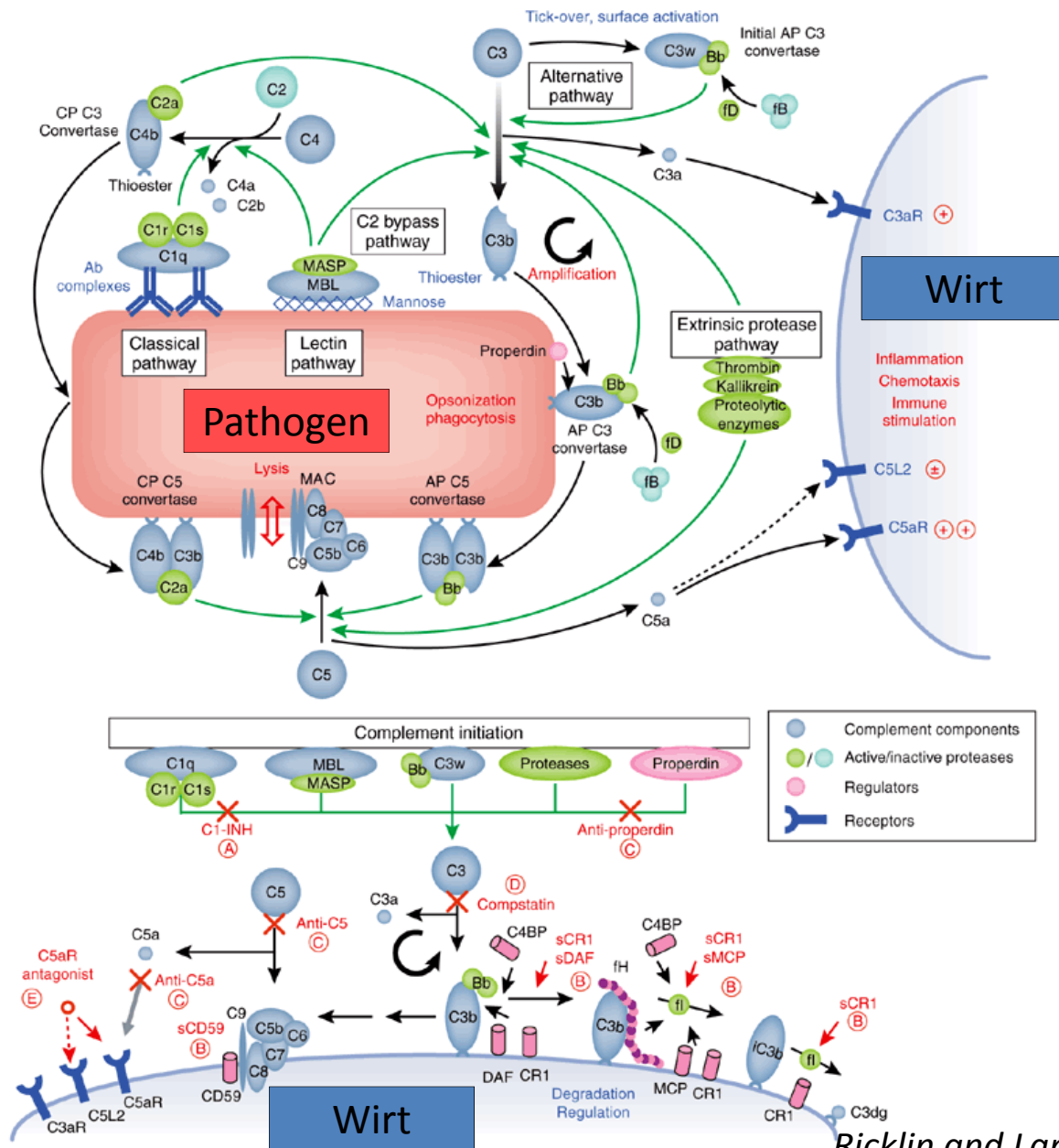
# Angeborene Immunabwehr



‚PAMPs‘ and ‚DAMPs‘  
pathogen- / danger-associated molecular patterns

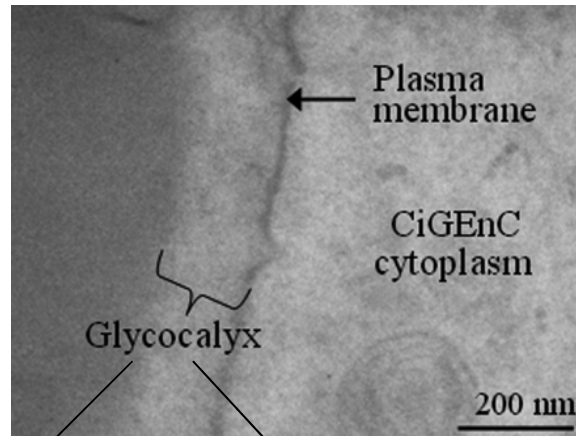
pattern-recognition receptors  
(Toll-like receptors; MB lectins, ficolins...)

# Komplementsystem

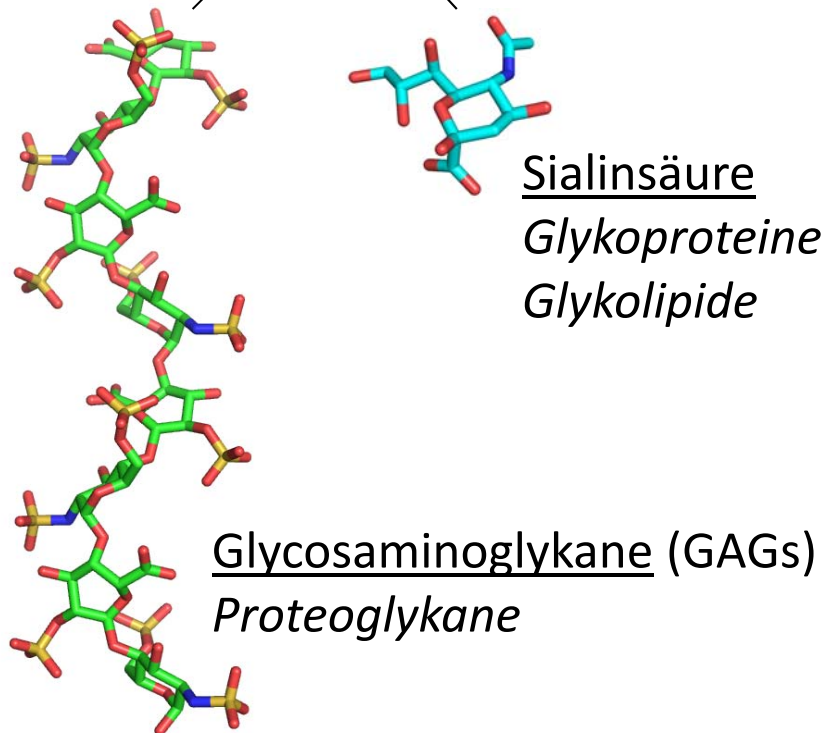


# „Since there are PAMPs and DAMPs, there must be SAMPs?“

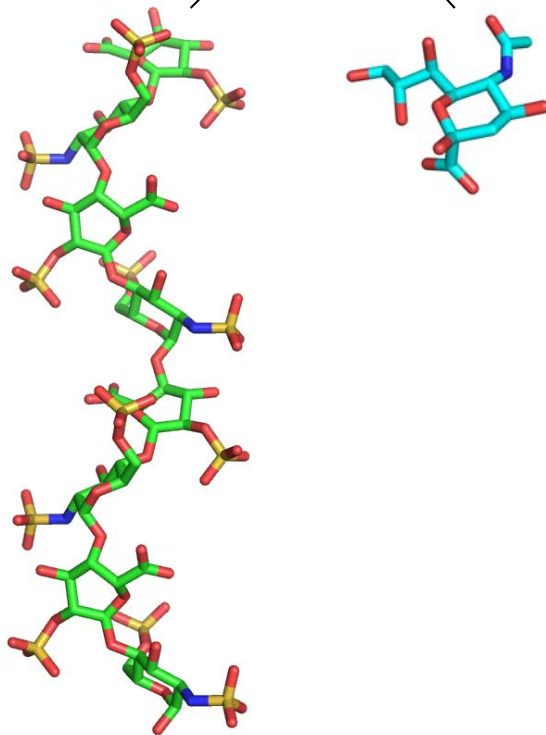
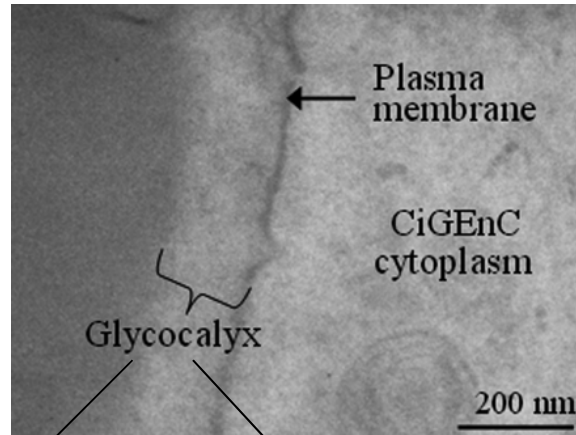
Ajit Varki, *Glycobiology* 2011



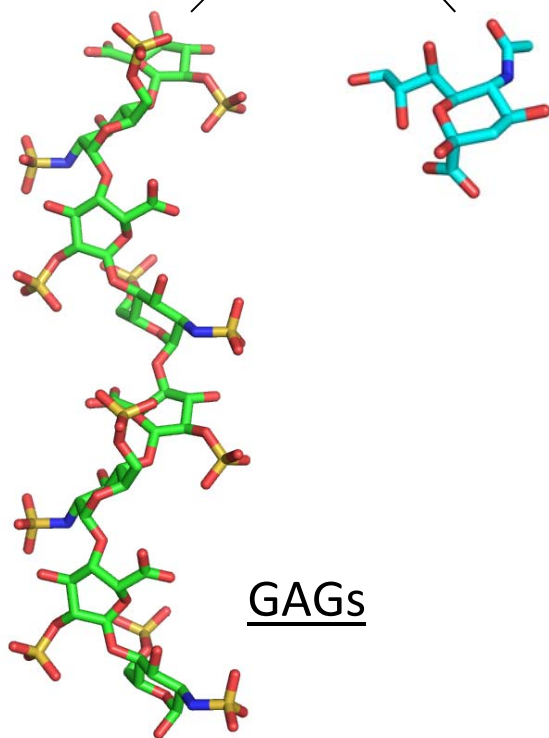
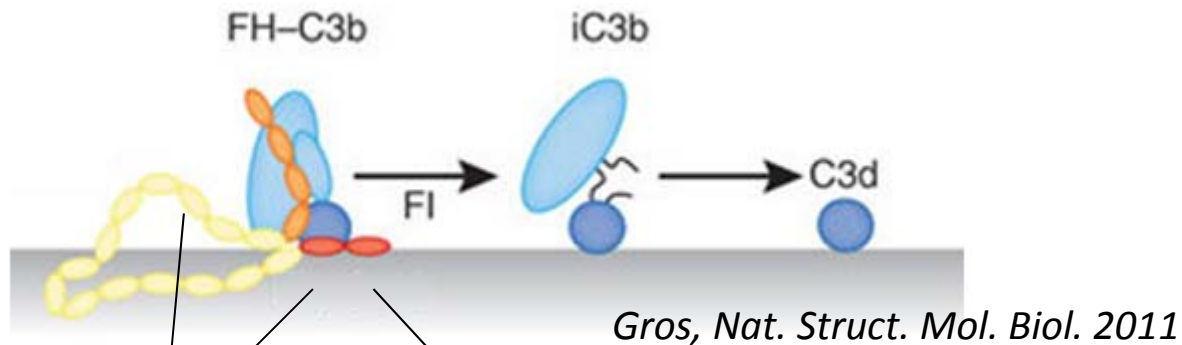
*Singh et al., JASN 2007*



„Since there are PAMPs and DAMPs, there must be SAMPs?“



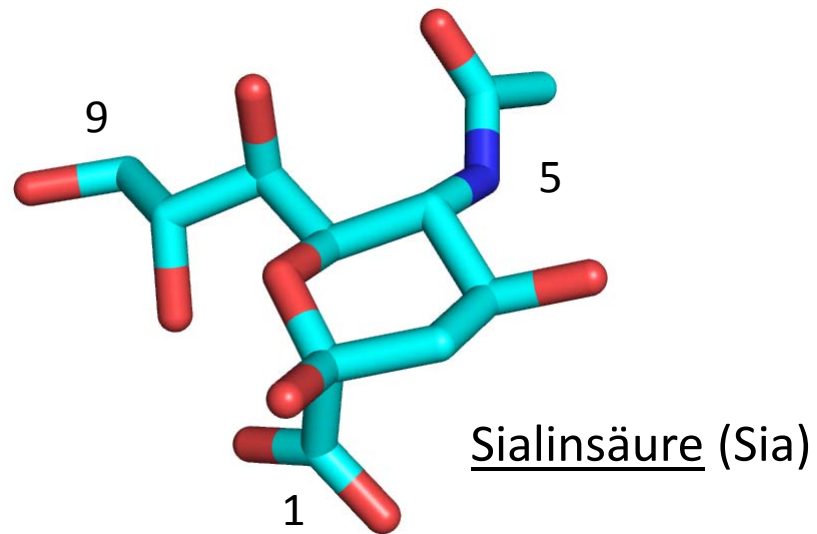
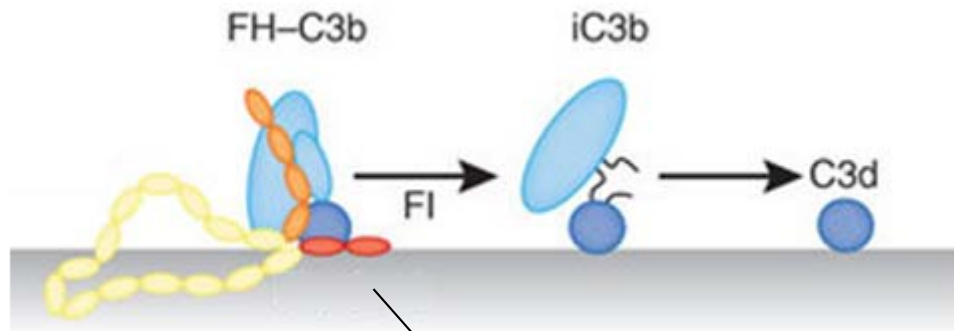
# Glyko-SAMPs im Komplementsystem



Sialinsäure

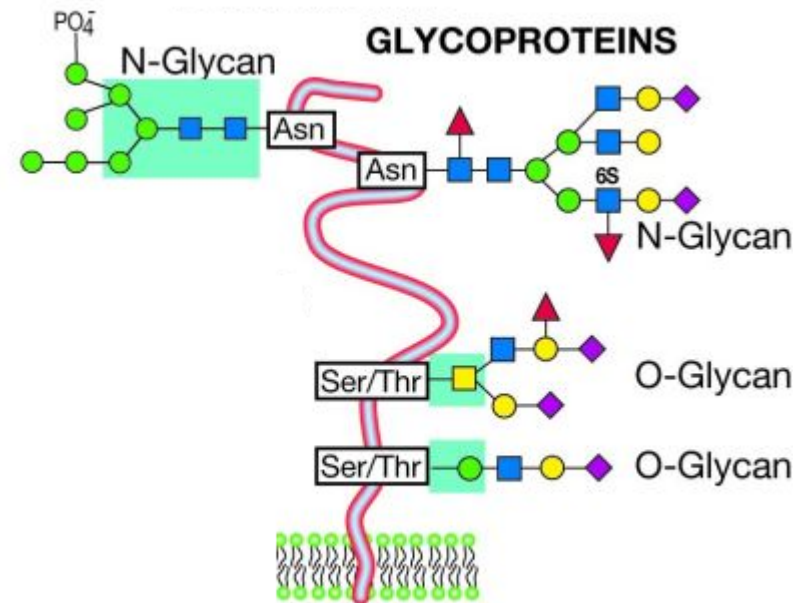
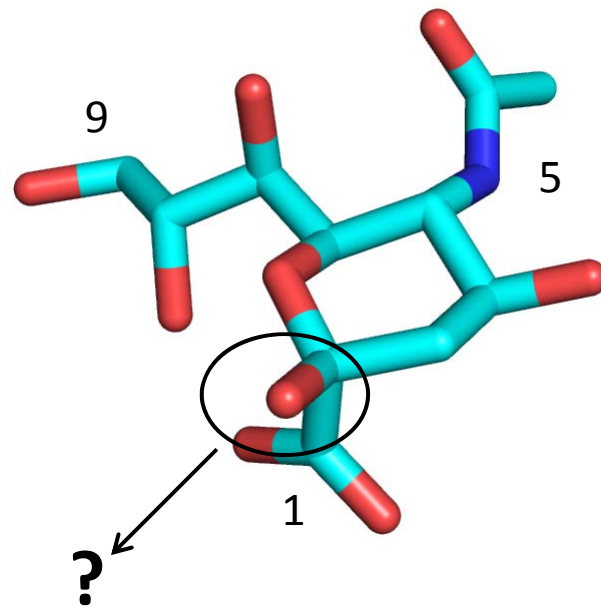
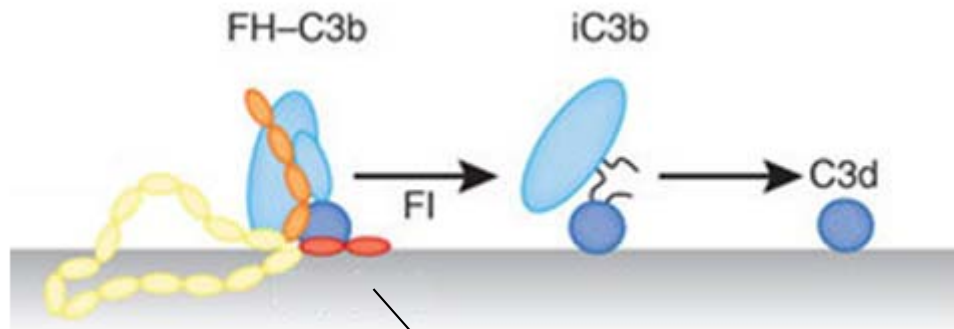
GAGs

# Glyko-SAMPs im Komplementsystem



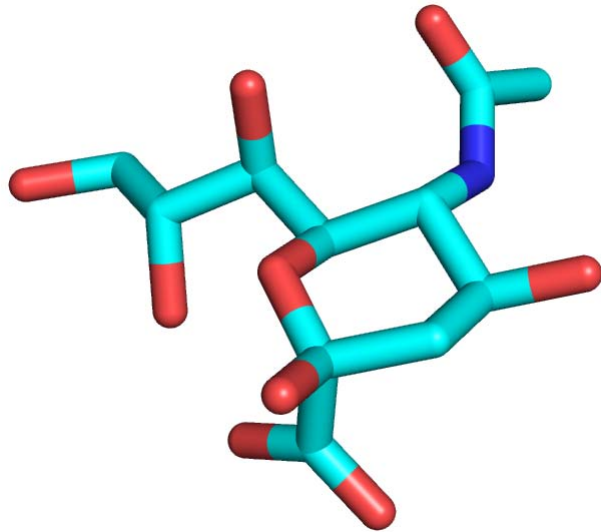


# Glyko-SAMPs im Komplementsystem



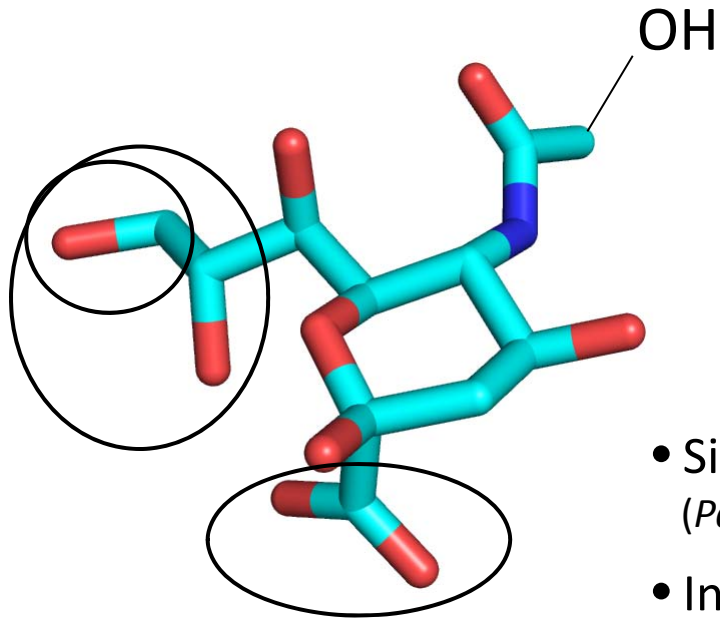
Varki et al., *Essentials of Glycobiology*, 2009

# Clues



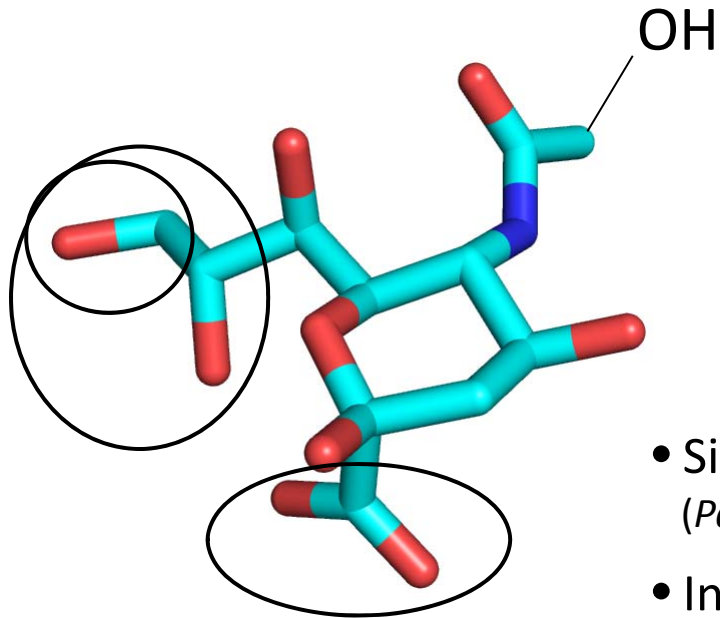
- Sia inhibiert das Komplementsystem (AP)  
(Pangburn and Müller-Eberhard 1978; Fearon 1978)

# Clues



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*(Pangburn and Müller-Eberhard 1978; Fearon 1978)*
- Inhibierung ist spezifisch  
*(Fearon 1978, Varki and Kornfeld 1980; Michalek et al.1988)*

# Clues

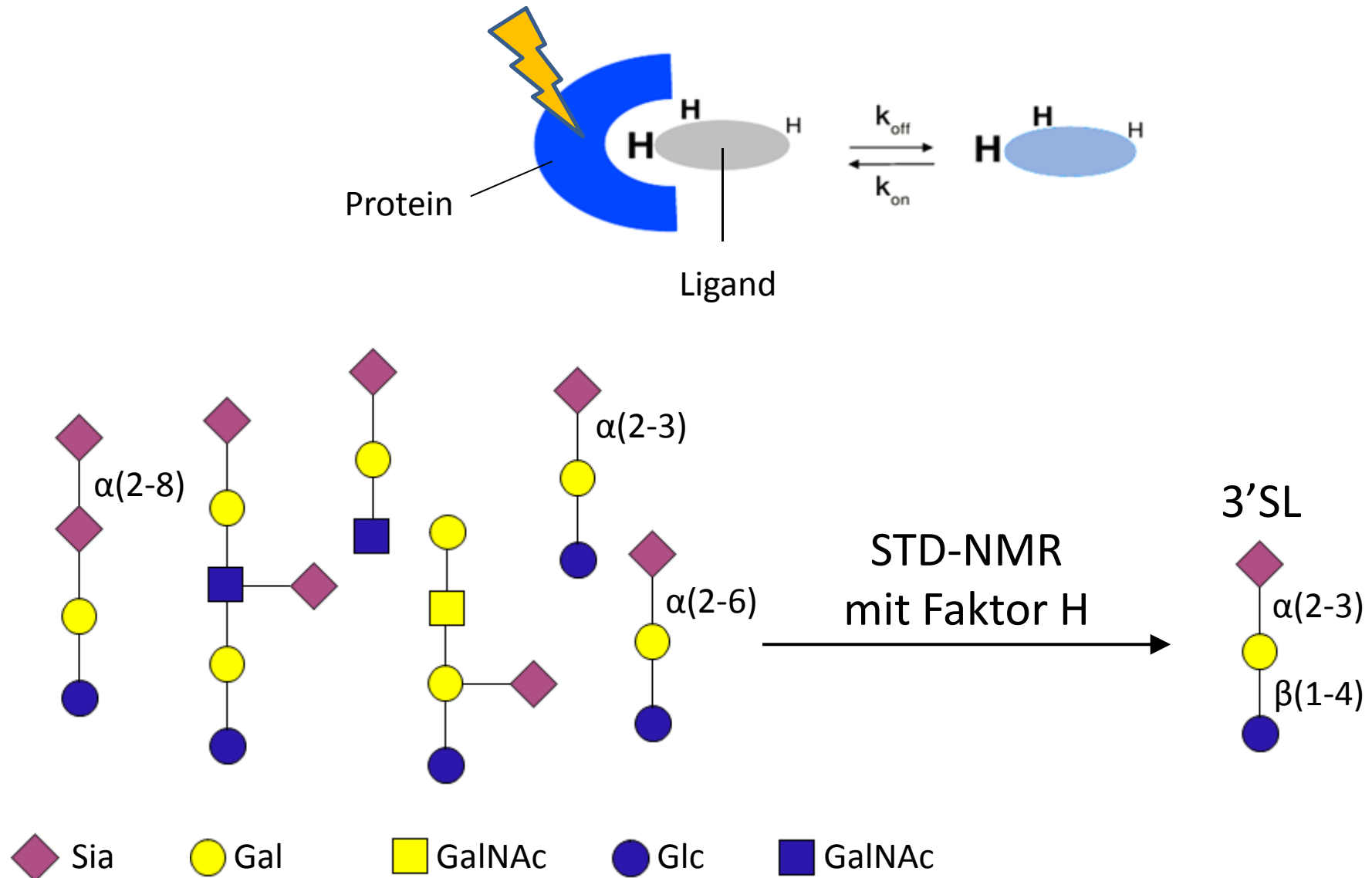


- Sia inhibiert das Komplementsystem (AP)  
*(Pangburn and Müller-Eberhard 1978; Fearon 1978)*
- Inhibierung ist spezifisch  
*(Fearon 1978, Varki and Kornfeld 1980; Michalek et al.1988)*
- Inhibierung verläuft über Faktor H C-terminus  
*(Meri and Pangburn 1990; Ram et al. 1998; Ferreira 2006)*

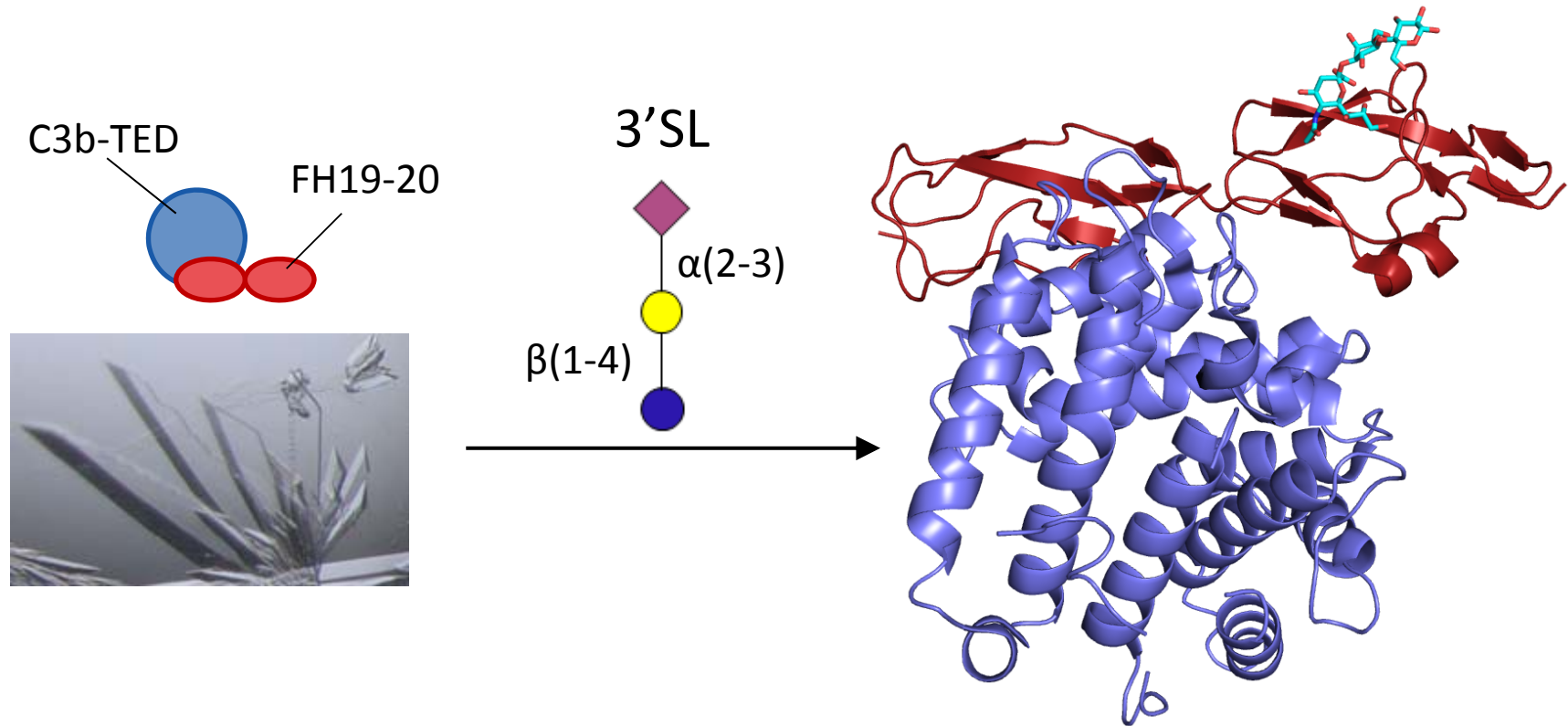


*Ram et al., J. Exp. Med. 1998; Ferreira et al., J. Immunol. 2006*

# Komplementierung des Zuckercodes I

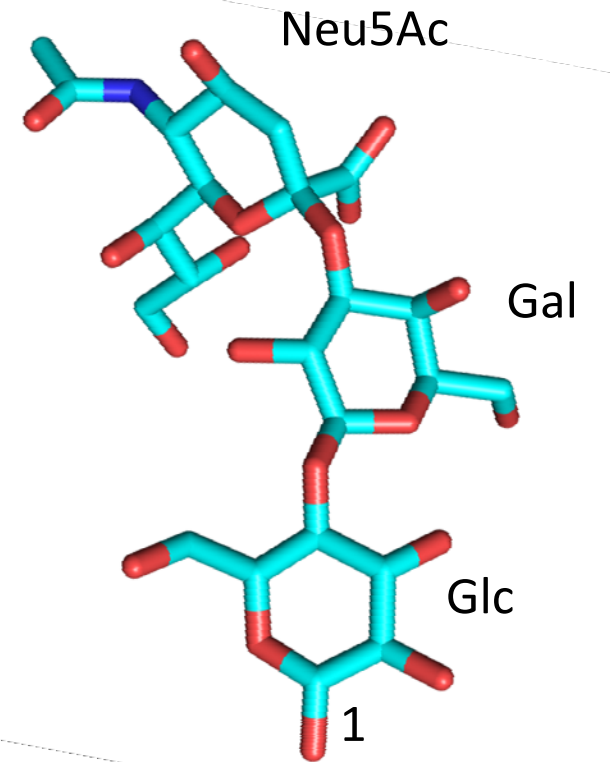
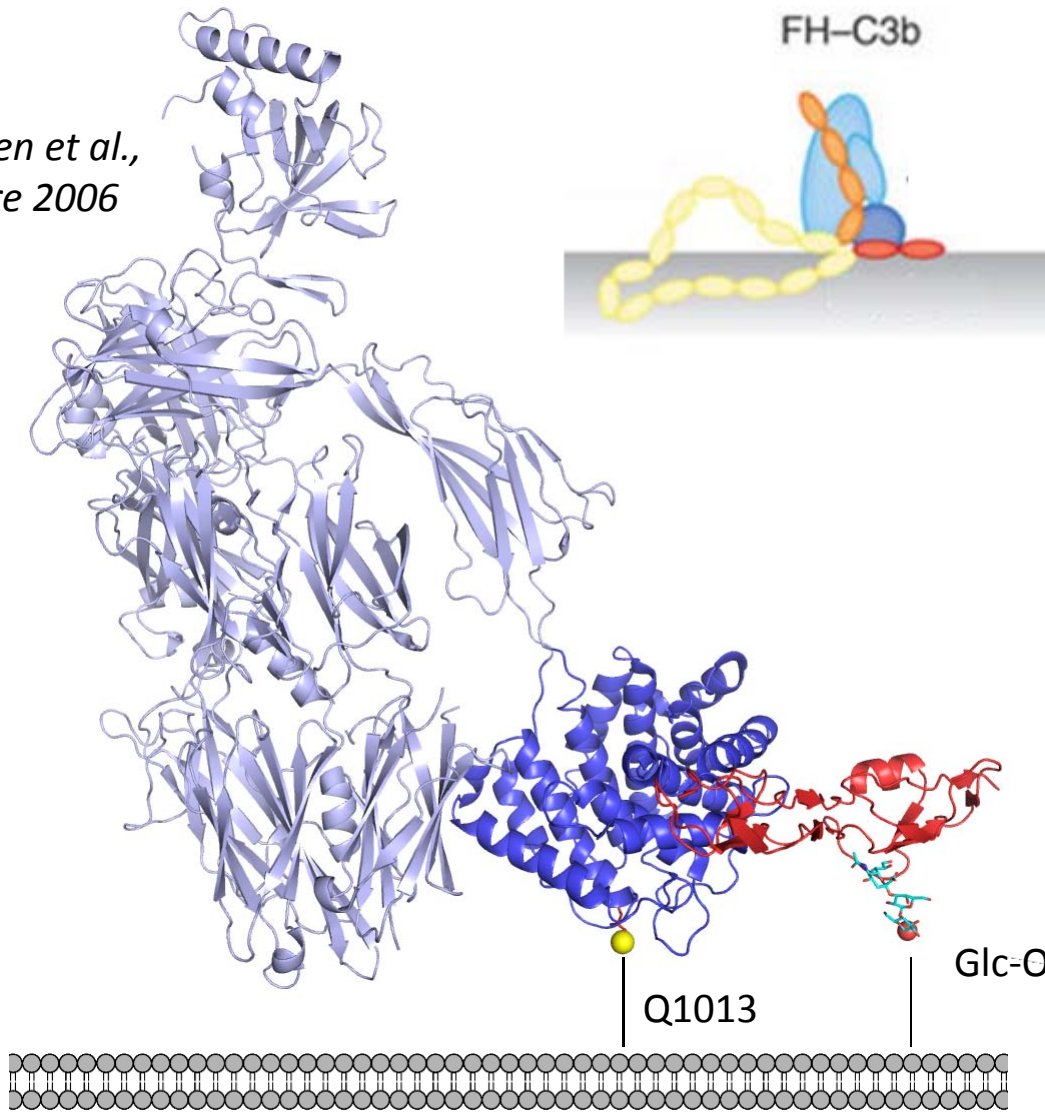


# Komplementierung des Zuckercodes II



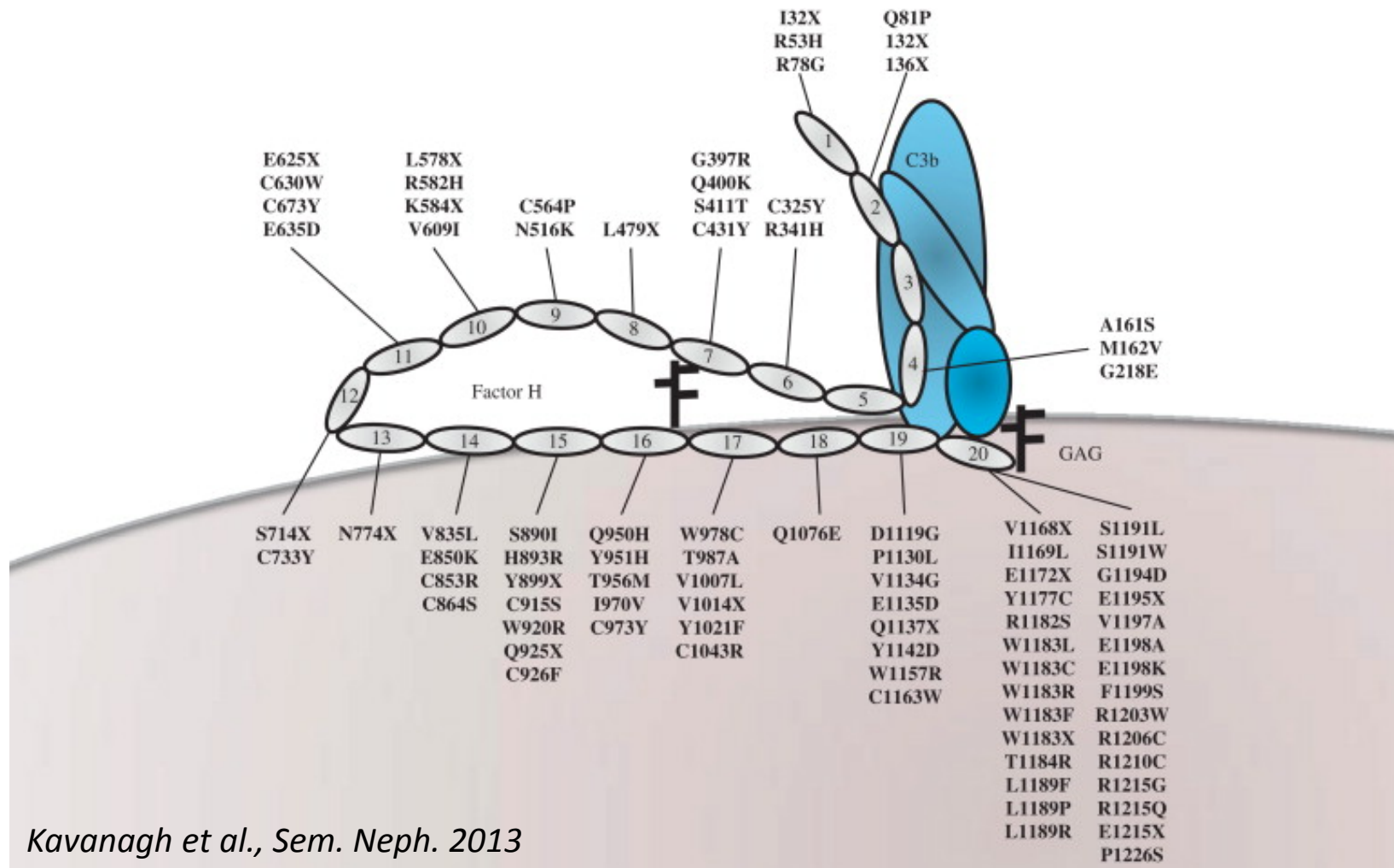
# Komplementierung des Zuckercodes III

*Janssen et al.,  
Nature 2006*



*Blaum et al., Nat. Chem. Biol. 2015*

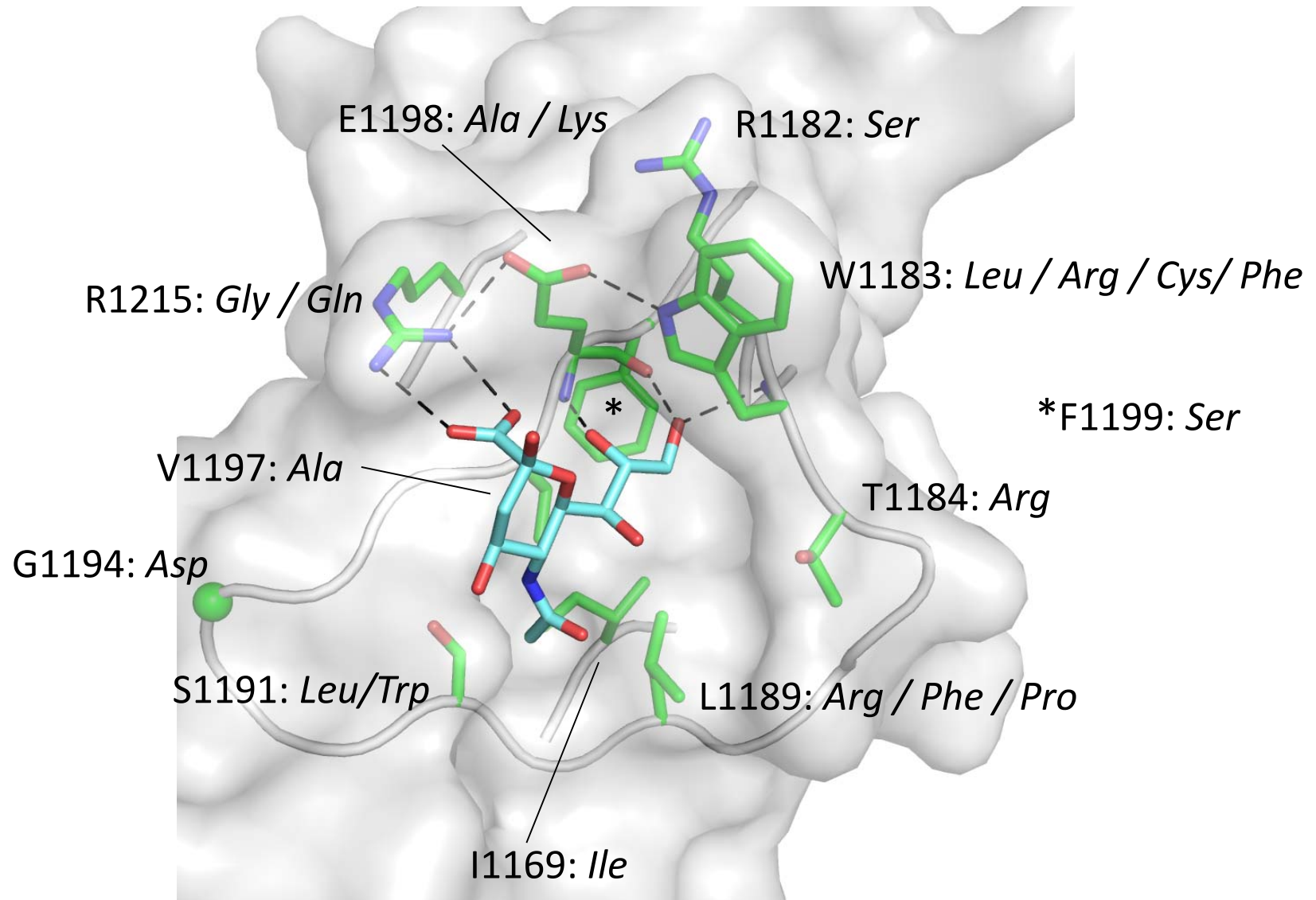
# Atypisches hemolytisch-urämisches Syndrom (aHUS)



Kavanagh et al., Sem. Neph. 2013



# aHUS Mutationen in Faktor H



# Danksagung

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