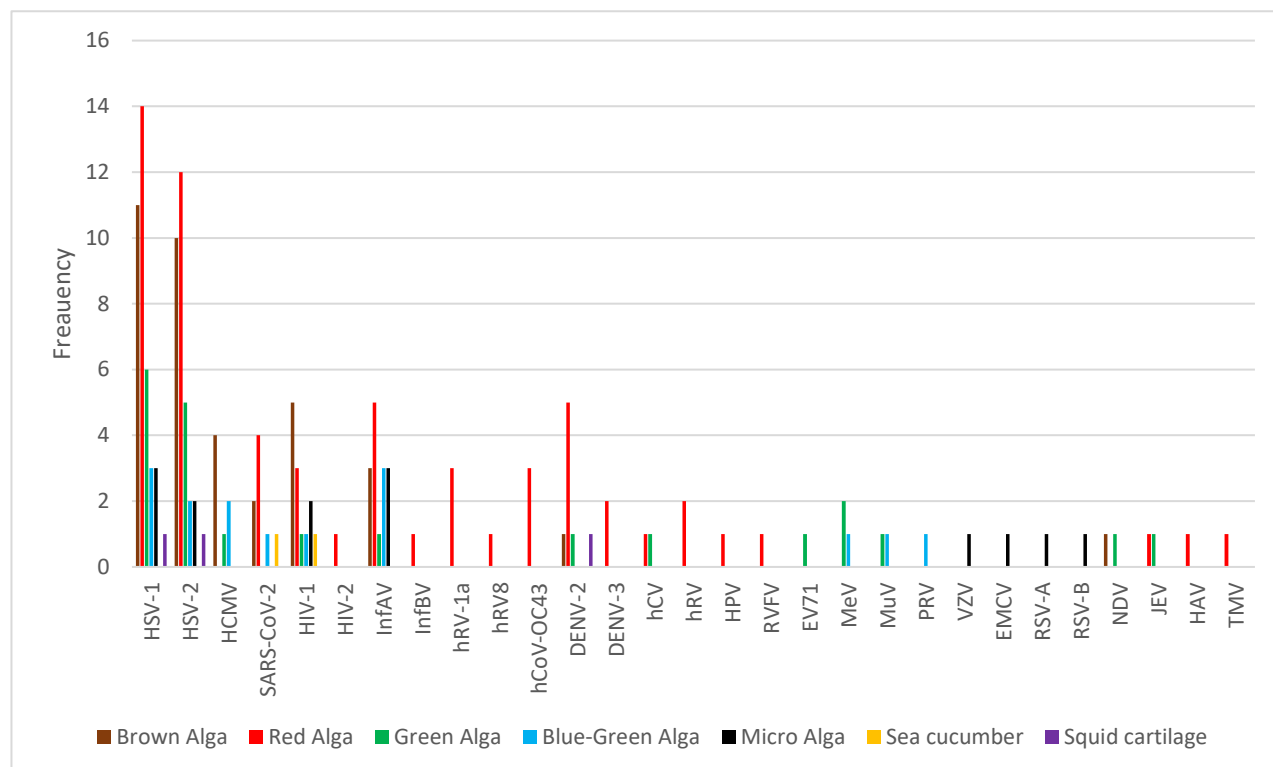
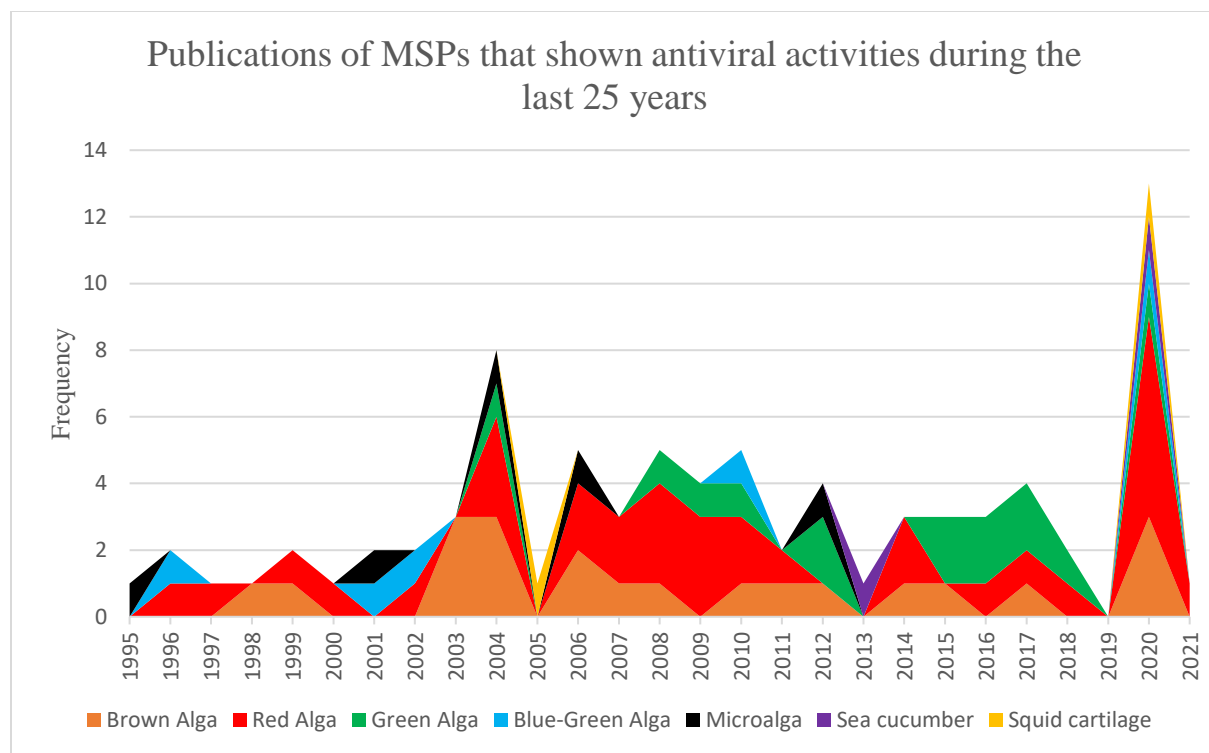


## Supplementary data

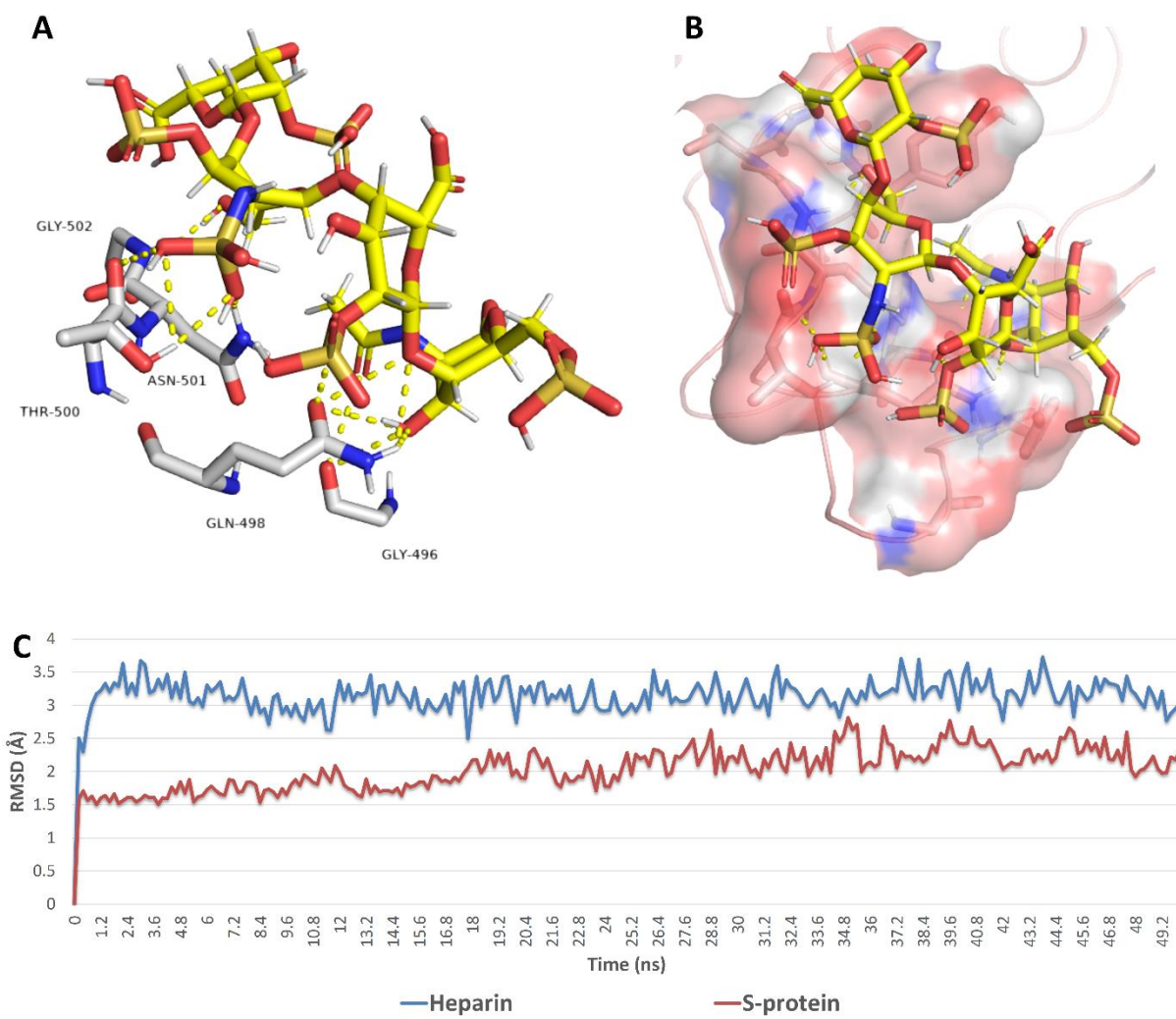
### Marine Sulfated Polysaccharides as Promising Antiviral Agents: A Comprehensive Review and Modelling Study Focussing on SARS CoV-2



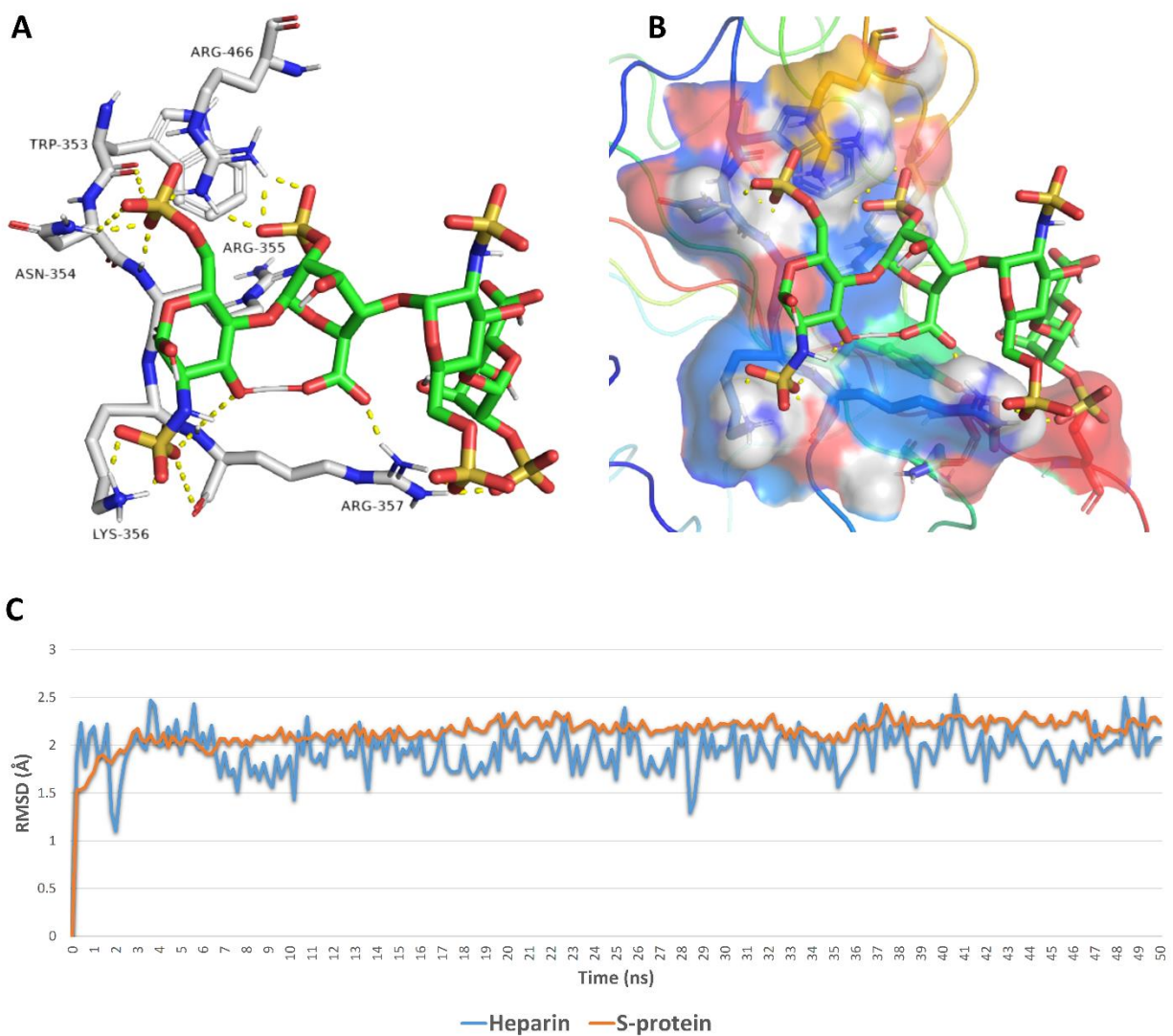
**Figure S1.** The frequent study of marine sources of MSPs that have shown antiviral activities against the mentioned virus strains during the last 25 years.



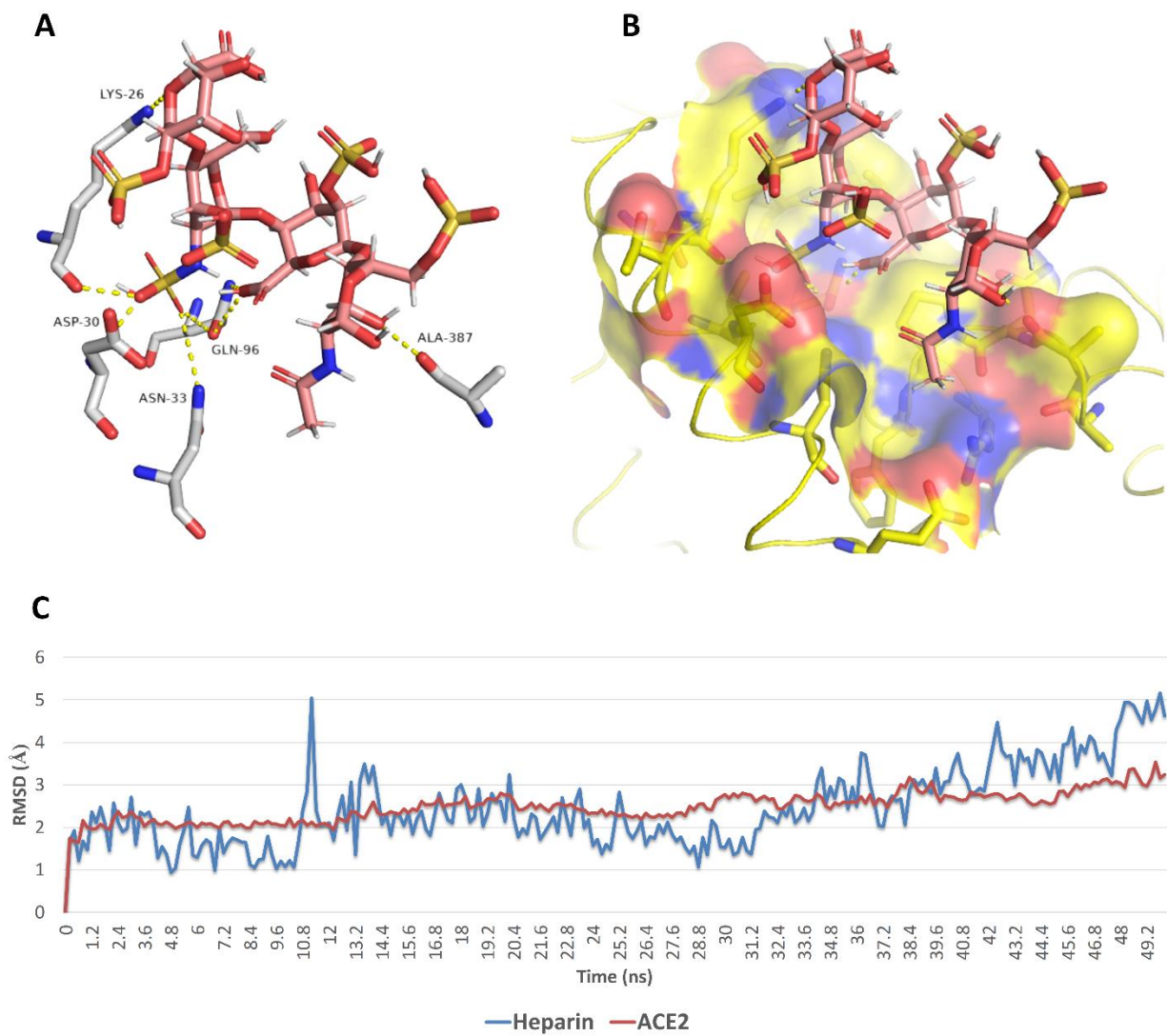
**Figure S2.** The publications number of MSPs that exhibit antiviral activities during the last 25 years.



**Figure S3.** Binding mode of heparin with Site 1 (A and B) together with the RMSDs of heparin and RBD during 50 ns MDSs (C).

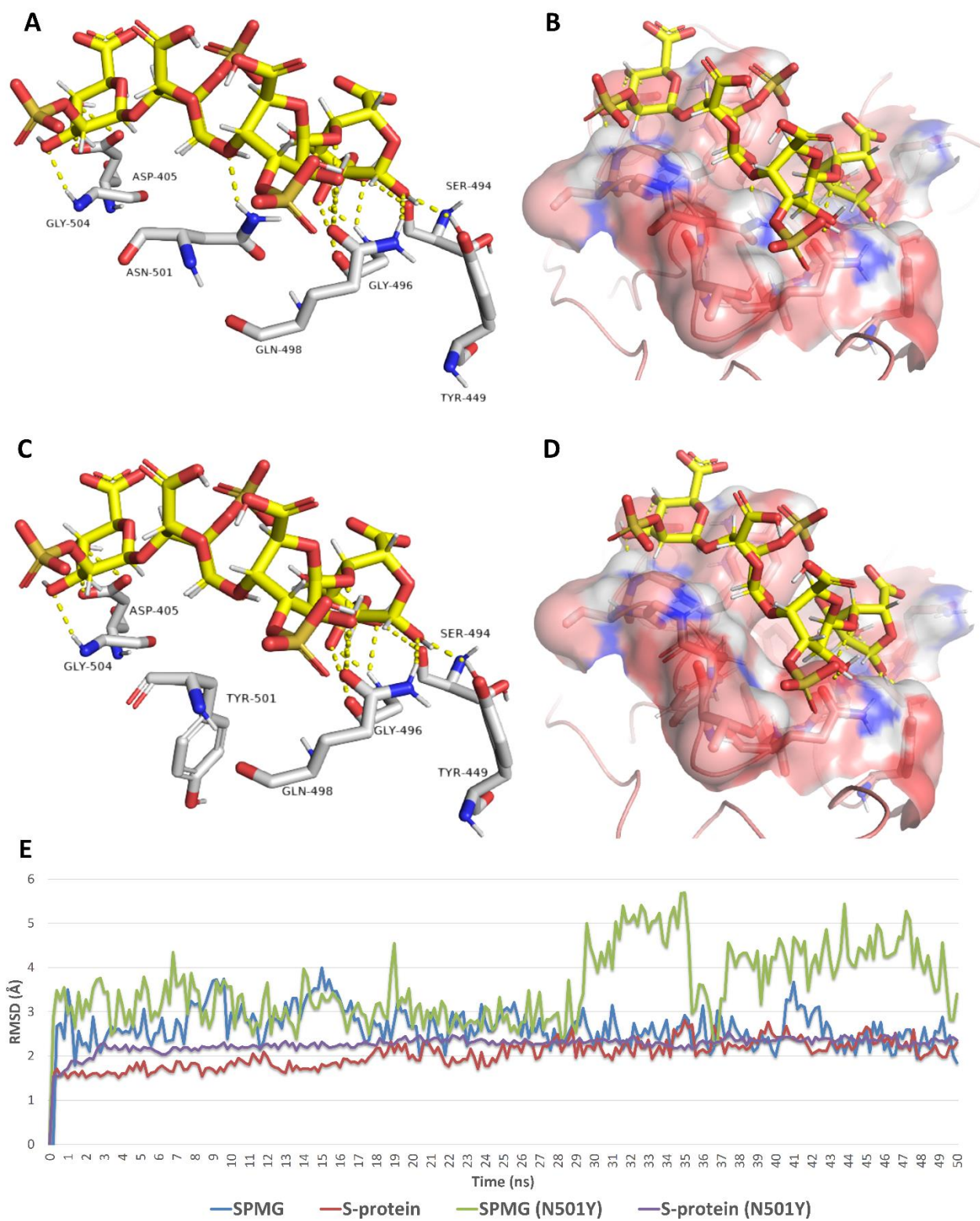


**Figure S4.** Binding mode of heparin with Site 2 (A and B) together with the RMSDs of heparin and RBD during 50 ns MDs (C).

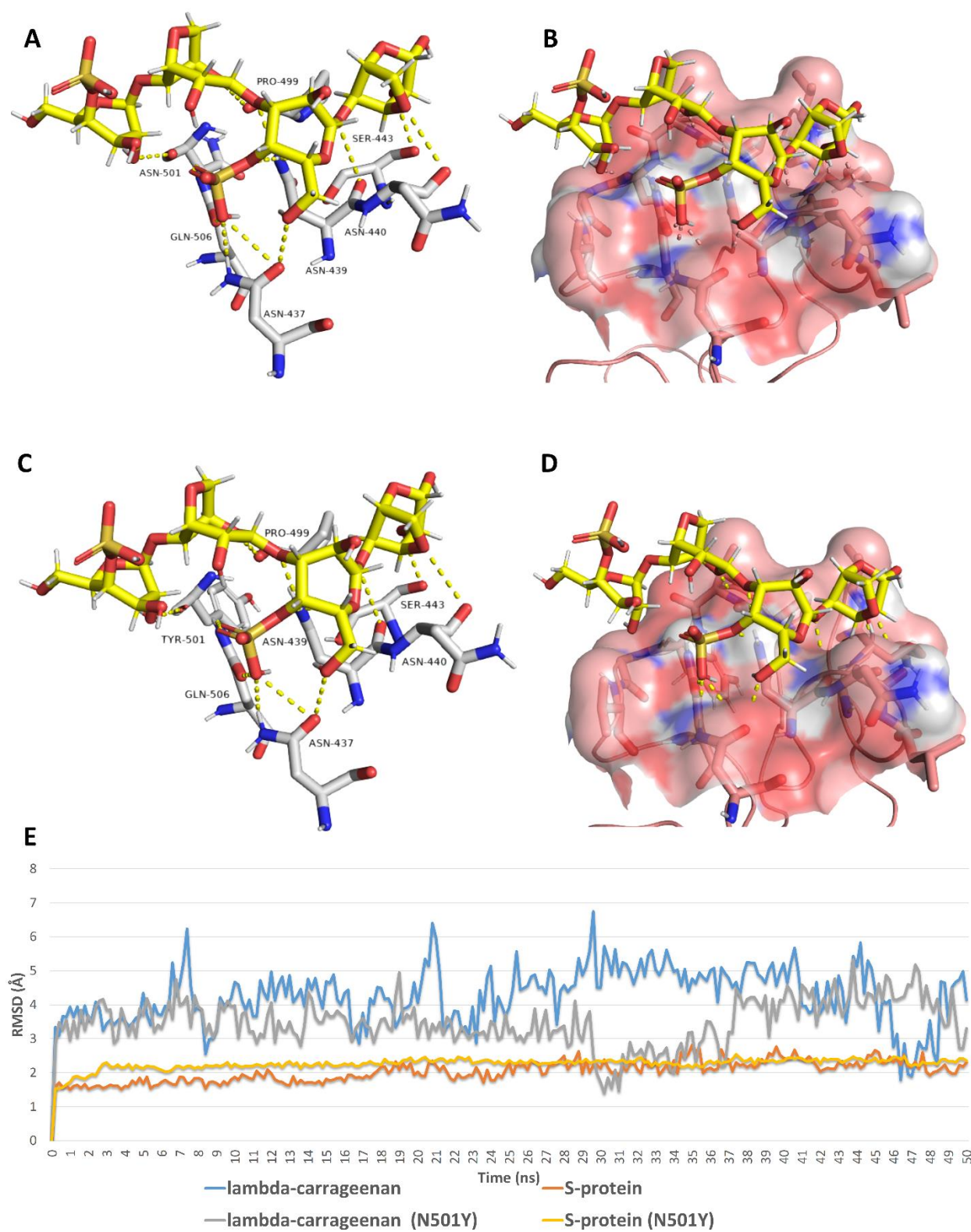


**Figure S5.** Binding mode of heparin with Site 3 (A and B) together with the RMSDs of heparin and RBD during 50 ns MDs (C).

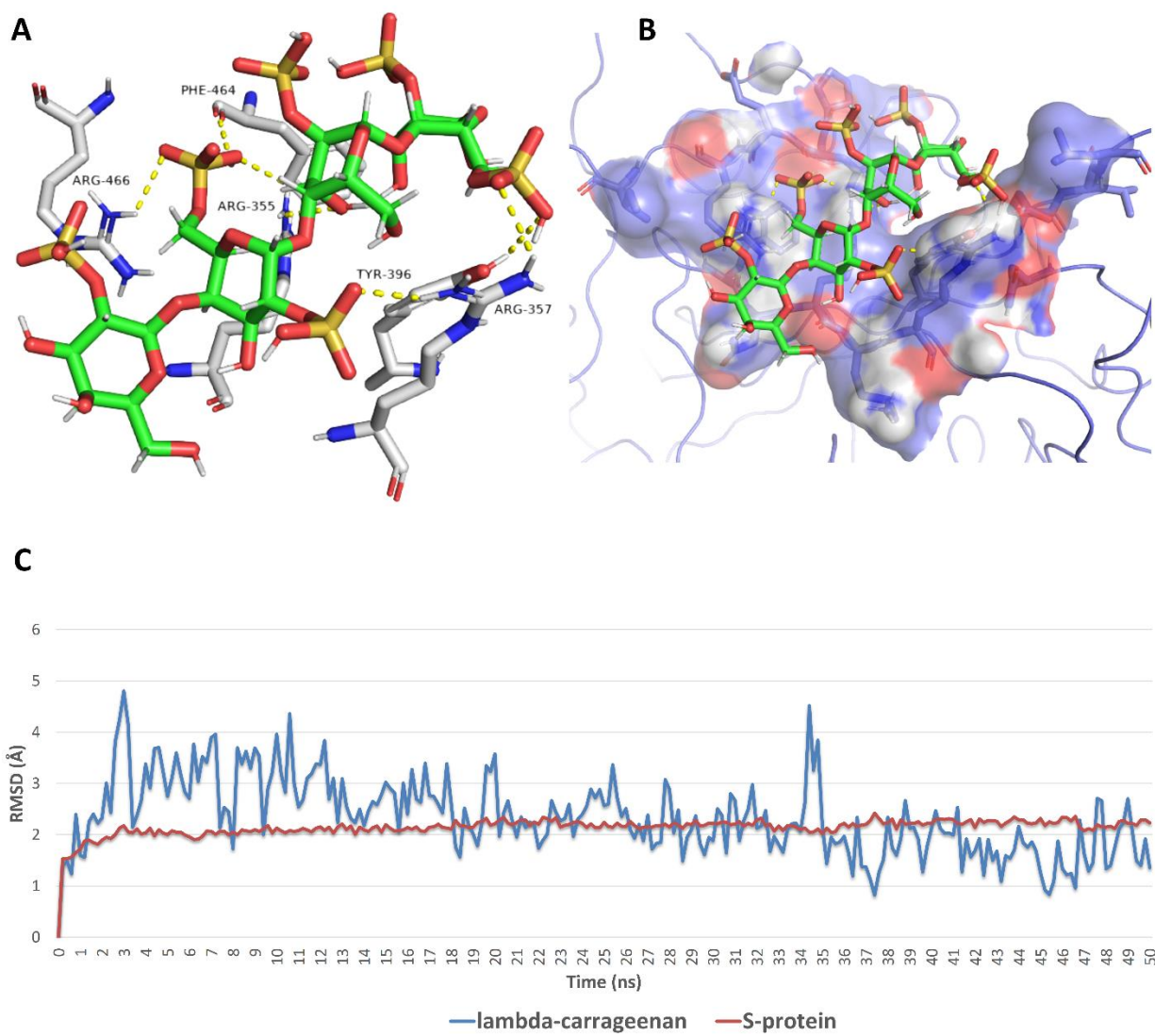




**Figure S6.** Binding mode of SPMG (compound 2) inside Site 1 (A and B) and its mutated form (C and D) together with its RMSDs during 50 ns of MDSS (E).



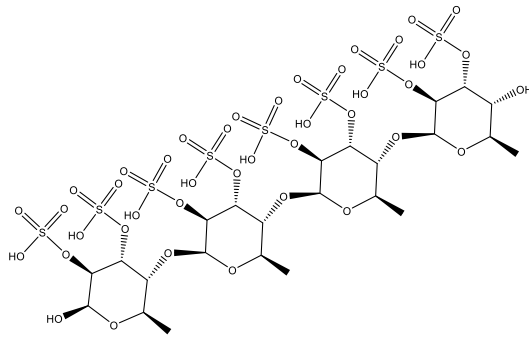
**Figure S7.** Binding mode of lambda-carrageenan (compound 5) inside Site 1 (A and B) and its mutated form (C and D) together with its RMSDs during 50 ns of MDs (E).



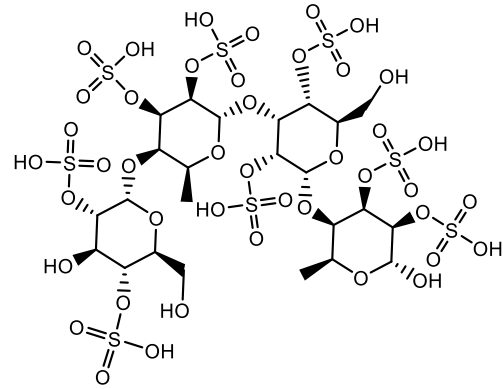
**Figure S8.** Binding mode of lambda-carrageenan (compound 5) inside Site 2 (A and B) together with its RMSDs during 50 ns of MDSs (C).



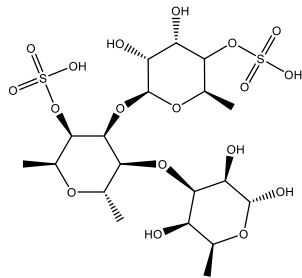
## Brown Algae



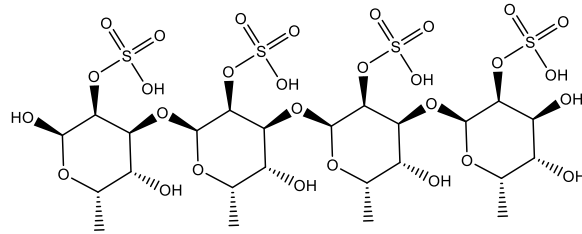
Fucoidan:  $\alpha$ -(1  $\rightarrow$  4)-linked  
glucopyranosyl residues



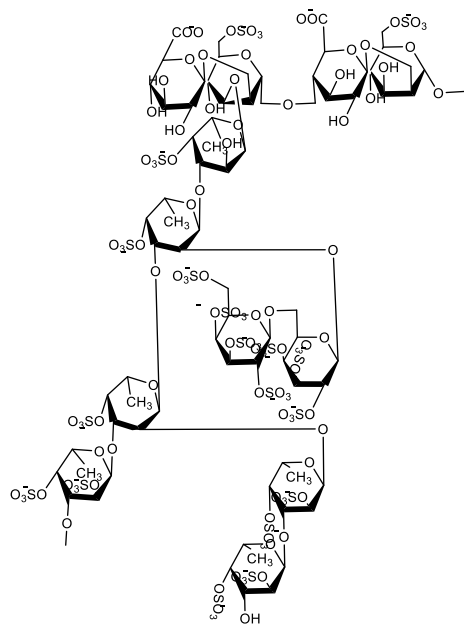
Sulfated galactofucan:  $\alpha$ -(1,3)-  
and (1,4)- $\alpha$ -L- (alternating)



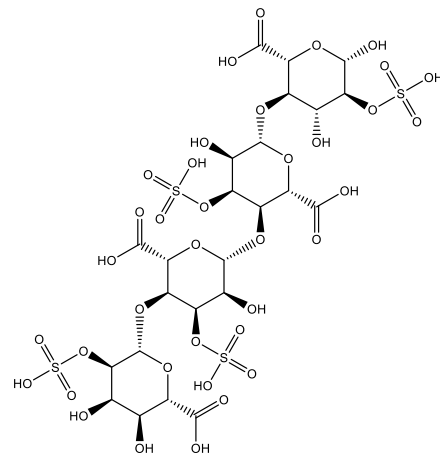
Sulfated Fucans



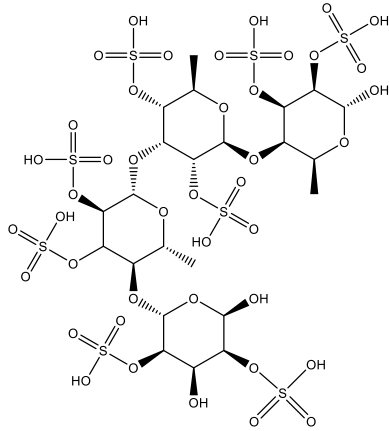
Fucoidan:  $\alpha$ -(1 $\rightarrow$ 3)-linked



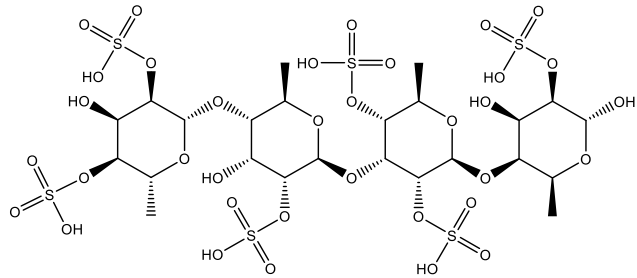
Fucoidan: RPI-27 and RPI-28 in a complex



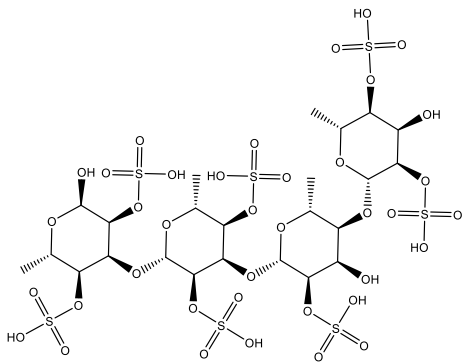
Sulfated polymannuroguluronate (SPMG)



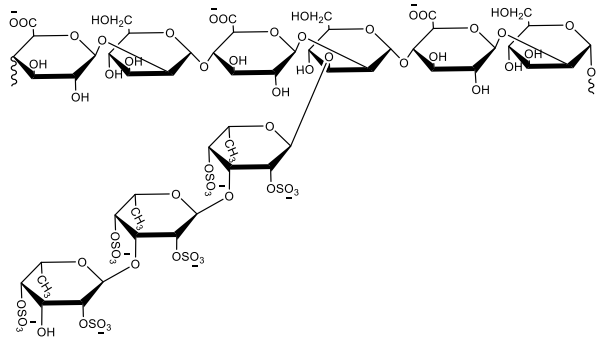
Sulfated galactofucan



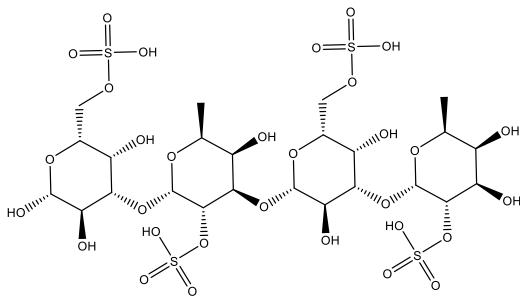
Sulfated fucan: (1→4)- and (1→3)-  
linked- $\alpha$ -l-fucopyranosyl residues



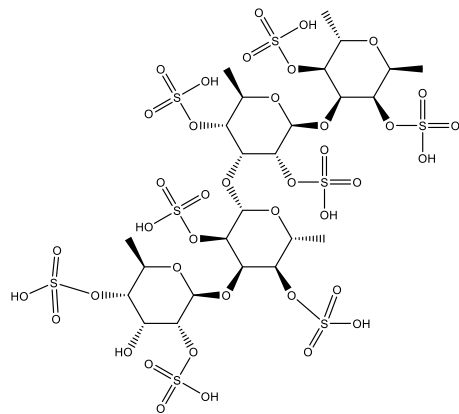
Fucoidan: (1,3)- $\alpha$ -l-fuc, (1,3)- and (1,4)- $\alpha$ -l-fuc



Fucoidan KW

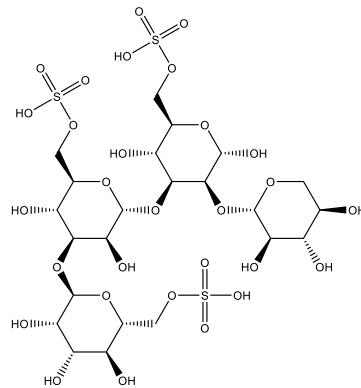
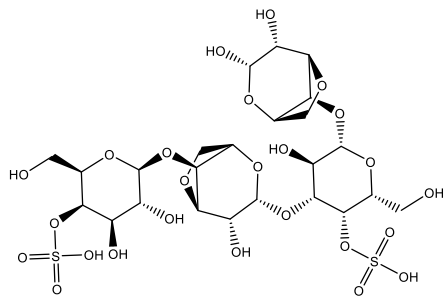


Galactofucan

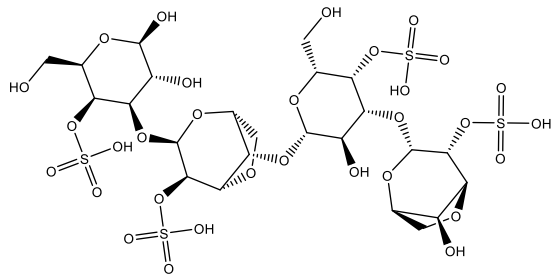


Fucoidan

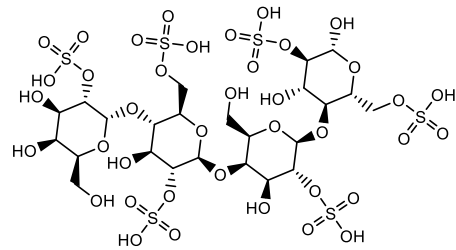
## Red Algae



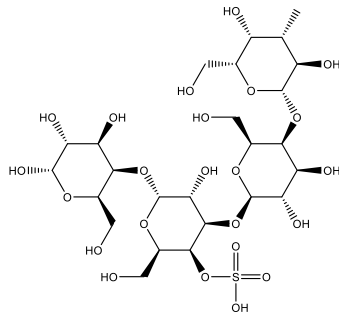
## Kappa-Carrageenan



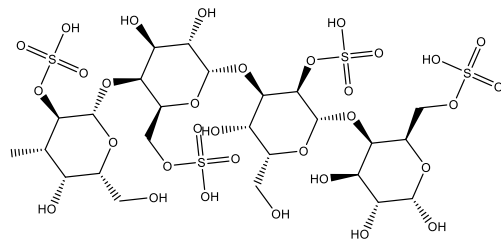
## Sulfated xylomannans



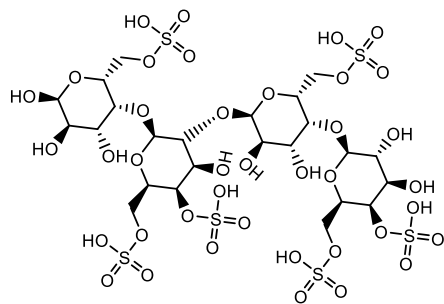
## Iota-carrageenan



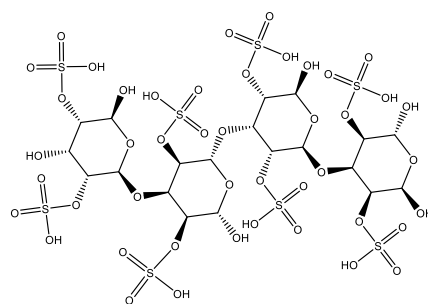
## lambda-carrageenan



## DL-hybrid sulfated galactan

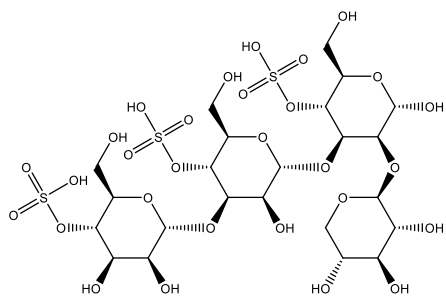


## DL-galactan hybrid C2S-3

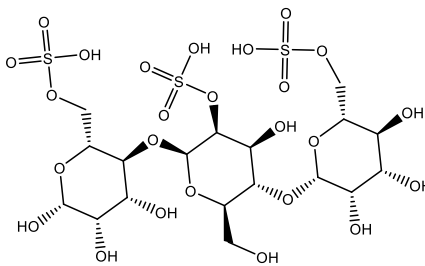


## Sulfated galactan

## Sulfated mannan

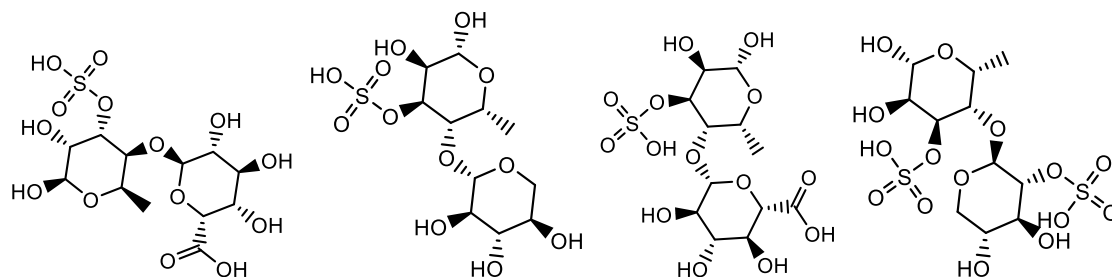


Sulfated xylomannan

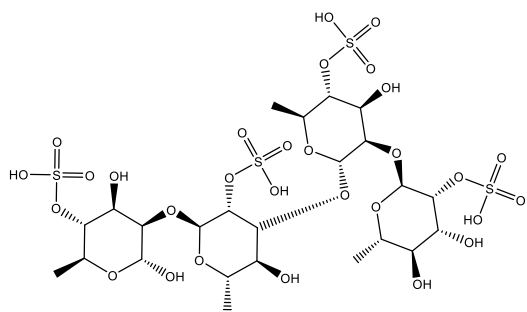


Sulfated xylomannans:  $\alpha$ -(1→3)-linked  
D-mannopyranosyl residues

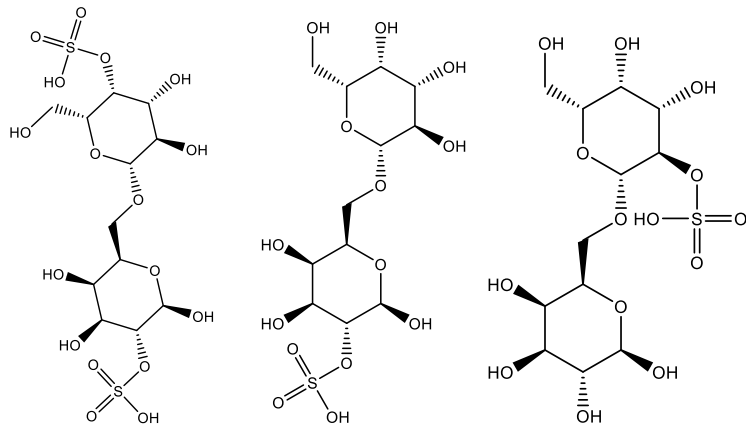
## Green Algae



Ulvans

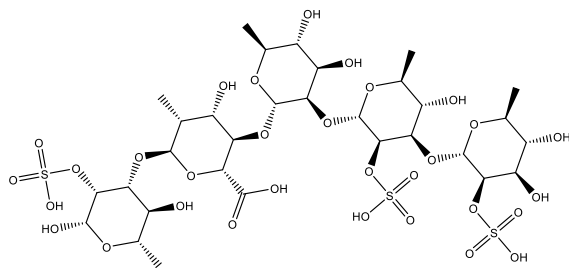


Sulfated heterorhamnan



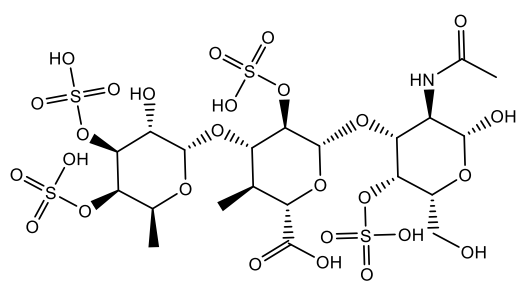
Sulfated arabinoxylogalactans

## Blue-Green Algae

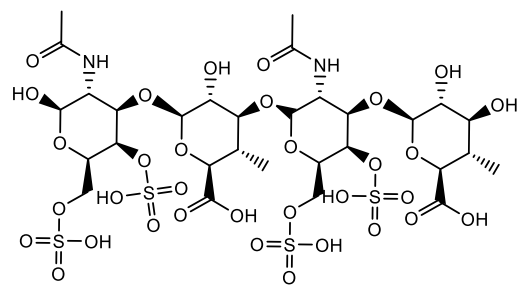


Spirulan (Ca-SP)

## Marine animal-derived sulfated polysaccharides



Sea cucumber sulfated polysaccharide (SCSP)



Chondroitin sulphate E (CS-E)