

Crystal Structure of *Morone saxatilis* F-lectin

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F-lectins are a novel carbohydrate recognition domain first identified in *Anguilla anguilla* agglutinin (AAA), a 17 kDa serum fucoslectin from European eel [1]. Because AAA specifically recognizes fucosylated oligosaccharides has been used extensively as a reagent in blood typing and histochemistry. F-lectins from invertebrate and vertebrate species function as innate immunity recognition molecules.

The serum of *M. Saxatilis*, striped bass, contains a fucoslectin (MsFBP32) that displays two distinct F-lectin sequences in tandem. The crystal structure of MSFB32 complexes with fucose and Lewis-a trisaccharide were determined. The MsFBP32 crystal structure shows a 83 Å long trimer with each distinct monomer CRD segregated to opposite sides. Despite trimers are not observed in solution, each half of the crystal asymmetric unit present striking similarities with the AAA physiological trimer. This arrangement of CRDs suggests a specific function for the recognition of carbohydrates structures on the cellular wall of fish pathogens. Although the two carbohydrate recognition sites of MsFBP32 are F-type carbohydrate binding sites, differences between them suggest that this is a divalent lectin that may recognize and link self to non-self carbohydrate structures.

[1] Bianchet M.A., Odom E.W., Vasta G.R., Amzel L.M., *Nature & Structural Biology*, 2002, **9**, 628-634.

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