

Sandbox sortases

From Proteopedia

This page is setup for Brandon to build his senior project for OU CHEM 4923

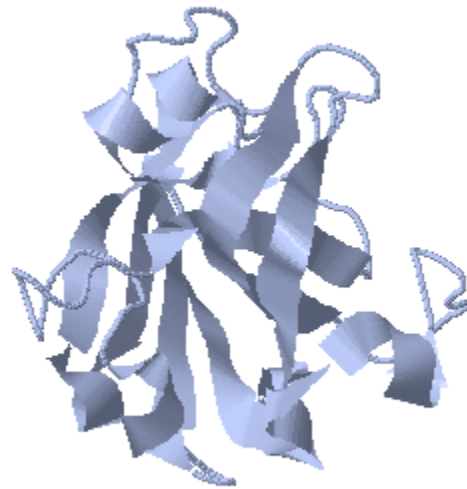
Sortase System

Sortase enzymes are trans-peptidases found in Gram-positive bacterial species. Their purpose is to covalently link proteins to the cell wall. By recognizing a specific sequence on target proteins, they “sort” which proteins to attach. Different sortases are separated into different classes based on their recognition sequence and specific function. Class A sortases (SrtA) found in *Staphylococcus aureus* were the first sortase enzyme to be isolated in the lab in 1999 and have become the prototypical sortase ^[1]. Because surface proteins play such a big role in a pathogen’s virulence, sortases have become an important topic for study ^[2].

Contents

- 1 Structure
- 2 *S. aureus* SrtA mechanism

Displaying simplified model



JSmol

toggle spin

toggle quality

popup

load full

Class A sortase

References

1. ↑ ^{1.0 1.1 1.2 1.3 1.4 1.5} McCafferty, Dewey G., and Jeffrey A. Melvin. ‘Sortases’. Handbook of Proteolytic Enzymes. N.p.: Elsevier BV, 2013. 2459–2465. PDF.
2. ↑ ^{2.0 2.1 2.2 2.3 2.4} Spirig, T, EM Weiner, and RT Clubb. ‘Sortase Enzymes in Gram-Positive Bacteria’. Molecular microbiology. 5.82 (27 Oct. 2011): n.pag. 4 Nov. 2015.
3. ↑ Maresso, Anthony W., Travis J. Chapa, and Olaf Schneewind. ‘Surface Protein IsdC and B Are Required for Heme-Iron Scavenging of Bacillus Anthracis’. 188.23 (29 Sep. 2006): n.pag. 4 Nov. 2015.

4. ↑ Theile, Christopher S, et al. 'Site-Specific N-Terminal Labeling of Proteins Using Sortase-Mediated Reactions'. *Nature Protocols* 8.9 (29 Aug. 2013): 1800–1807.
5. ↑ Mao, H, et al. 'Sortase-Mediated Protein Ligation: A New Method for Protein Engineering'. *Journal of the American Chemical Society*. 9.126 (5 Mar. 2004): n.pag. 4 Nov. 2015.

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