Toll-like receptors (TLRs) are membrane-spanning receptors that play a key role in the innate immune system. They play an important role in providing innate immunity. TLR1 is one such protein that belongs to this family. It recognizes pathogen-associated molecular pattern and is specific for gram-positive bacteria. TLR1 dimerizes with TLR2 and identifies a mycobacterial lipoprotein. This interaction and recognition is considered to be a key step in the invasion of Mycobacterium based infections like tuberculosis. The protein structure for TLR1 has not yet been predicted, either theoretically or experimentally. This gave us scope for building a model structure for Human Toll like Receptor 1 using multiple templates and MODELLER 9v7.

References

- Medzhitov, "Toll-like receptors and innate immunity," Nature Reviews
In Silico Modeling of Human Toll like Receptor 1

- Aswin Hari et al The Role of Toll-like Receptors in the Pathogenesis and Treatment of Dermatological Disease Mediators of Inflammation Volume 2010 (2010),
- Richard I. Tapping et al Mycobacterial lipo arabinomannan mediates physical interactions between TLR1 and TLR2 to induce signaling Innate Immunity August 2003 vol. 9 no. 4 264-268
- SignInA: http://www.cbs.dtu.dk/services/SignalP/
- HHSEARCH: http://toolkit.tuebingen.mpg.de/hhpred
- Paul de Bakker and Simon Lovell Structural validation by assessment of the Ramachandran Plot,

Index Terms

Computer Science
Applied Sciences
Keywords

TLR  Homology modeling  Modeller  Mycobacterium  Tuberculosis