

CLAIMS

1. A soluble dimeric fusion protein comprising a first and second polypeptides, wherein the first and second polypeptides each comprises a human Dectin-1 receptor polypeptide fused to a human Fc domain via a dimerization linker, wherein the first and second polypeptides form a dimeric fusion protein via association between the dimerization linkers on each of the first and second polypeptides.
2. The fusion protein of claim 1, wherein the human Dectin-1 receptor polypeptide consists of an amino acid sequence having at least 70% sequence identity to an amino acid sequence of SEQ ID NO: 1.
3. The fusion protein of claim 1, wherein the dimerization linker comprises or consists an amino acid sequence having at least 70% sequence identity to an amino acid sequence of SEQ ID NO: 2.
4. The fusion protein of claim 1, wherein the Fc domain is an IgG1 Fc domain.
5. The fusion protein of claim 4, wherein the IgG1 Fc domain comprises or consists of an amino acid sequence having at least 70% sequence identity to an amino acid sequence of SEQ ID NO: 3.
6. A chimeric molecule comprising a fusion protein of any one of claims 1-5, and a heterologous moiety.
7. The chimeric molecule of claim 6, wherein the heterologous moiety comprises a payload.
8. The chimeric molecule of claim 7, wherein the payload is an anti-fungal agent.
9. The chimeric molecule of claim 8, wherein the anti-fungal agent is Amphotericin B.
10. An isolated polynucleotide comprising a nucleic acid sequence encoding the fusion protein of any one of claims 1 to 5.

11. A construct comprising a nucleic acid sequence encoding the fusion protein of any one of claims 1 to 5.
12. A host cell containing a construct of claim 11.
13. A method of preparing a fusion protein of any one of claims 1 to 5, the method comprising expressing the fusion protein with a host cell of claim 12, and purifying the fusion protein.
14. A pharmaceutical composition comprising a fusion protein of any one of claims 1-5, and a pharmaceutically acceptable carrier.
15. A fusion protein of any one of claims 1-5 for use as a medicament.
16. A method of immunizing a subject against a fungal infection, the method comprising administering to the subject with a therapeutically effective amount of a fusion protein of any one of claims 1 to 5 to immunize the subject against fungal infection.
17. The method of claim 16, wherein the method further comprises administering a therapeutically effective amount of an anti-fungal agent to the subject.
18. The method of claim 17, wherein the anti-fungal agent is Amphotericin B.
19. A method of preventing or treating a fungal infection in a subject, the method comprising administering to the subject a therapeutically effective amount of a fusion protein of any one of claims 1 to 5 to prevent or treat the fungal infection in the subject.
20. The method of claim 19, wherein the method further comprises administering a therapeutically effective amount of an anti-fungal agent to the subject.
21. The method of claim 20, wherein the anti-fungal agent is Amphotericin B.
22. A kit comprising a fusion protein of any one of claims 1-5.

23. A method of detecting a fungal infection in a subject, the method comprising the step of determining the level of β -glucan in a sample with a fusion protein of any one of claims 1-5, wherein an increased level of β -glucan as compared to a reference indicate the presence of a fungal infection in the subject.