Docket #: S17-179

Use of annexin V to prevent the spread of Listeria

Dr. Francis Blankenberg has developed a method to prevent the spread of Listeria and other obligate intracellular pathogens, including mycobacterium marinum, chlamydia trachomatis and parasitic infections. These pathogens share a common mechanism of cell to cell spread- they envelope themselves with membranes containing high levels of phosphatidylserine (PS) to evade recognition and attack by the host immune system. The effectiveness of the PS+membrane envelope system has made it difficult to effectively treat these infections. To overcome this difficulty the inventor has developed methods of using annexin V, a high affinity PS binding protein, to treat these infections. Annexin V can block the entry and immunosuppressive effects of pathogens which rely on PS-mediated mechanisms for infection. This technology provides methods to more effectively treat infection by Listeria, mycobacterium marinum, chlamydia trachomatis and parasites.

Stage of research
Proof-of-concept experiments using a murine listeria model have been performed and show great promise.

Applications

- Treat infection by Listeria and other obligate pathogens
    - Prevent further spread
    - Promote effective immune response
- Treat drug resistant parasitic pathogens including:
    - Leishmania
    - Trypanosoma cruzi
    - Toxoplasma gondii
- Boost vaccine efficacy in promoting an effective immune response to these pathogens

Advantages

- Solves a medical need- potential to provide effective treatment for Listeria and other obligate intracellular bacterial and parasitic infections
- Safe immunotherapeutic agent:
  - Not antigenic
  - Not associated with allergic reaction
- Can be used in combination with other therapeutics
- Can be radiolabeled and used as a radiotracer to guide treatment

Patents

- Published Application: 20190008922
- Published Application: WO2019010181
- Issued: 10,874,711 (USA)

Innovators

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