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(54) **NON-NATURAL AMINO ACID REPLICATION-DEPENDENT MICROORGANISMS AND VACCINES**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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(57) **ABSTRACT**

Compositions and methods of producing vaccines, including methods wherein whole organism vaccines are provided with limited replication abilities, thereby increasing vaccine safety and efficacy, through the use of non-natural, unnatural, or non-naturally encoded amino acids.

11 Claims, 18 Drawing Sheets

Specification includes a Sequence Listing.