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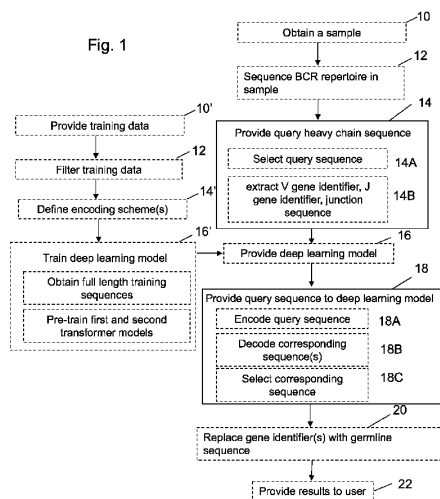
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- (54) **Title:** ENGINEERING OF ANTIGEN-BINDING PROTEINS



- (57) **Abstract:** Methods of identifying an antigen-binding protein comprising a pair of chains are described. The methods comprise providing a query sequence comprising a first chain sequence, and identifying a corresponding chain sequence by providing the query sequence to a deep learning model configured to take as input a query first chain sequence and to produce as output at least one corresponding chain sequence, thereby identifying a corresponding chain sequence for the query sequence, wherein the deep learning model has been trained using training first and corresponding chain sequences from known chain pairs. The first chain sequence may be a heavy/light chain of an antibody or B cell receptor or a $\beta/\alpha/\delta/\gamma$ chain of a T cell receptor, and the corresponding chain may be a light/heavy chain of an antibody or B cell receptor or an $\beta/\alpha/\delta/\gamma$ chain of a T cell receptor. The methods find uses in any context where it is desirable to identify chain pairings for antigen-binding molecules, such as e.g. in the context of identifying antigen-binding molecules that have a desired (e.g. therapeutic or functional) property. Related methods, systems and products are described.