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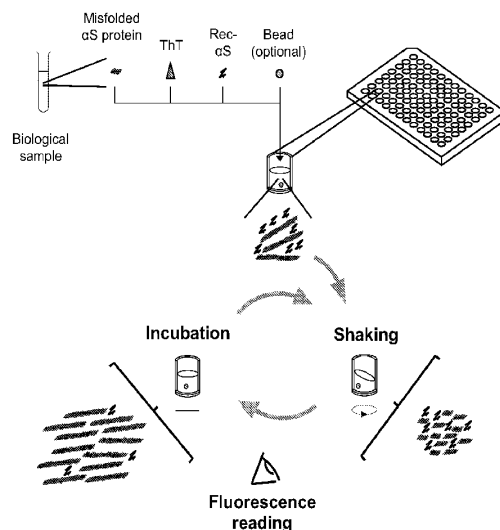
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- (54) **Title:** ALPHA-SYNUCLEIN SUBSTRATES AND METHODS FOR MAKING AND USING THE SAME

**FIG. 1**

(57) **Abstract:** An expression vector is provided for production of human alpha-synuclein (α S) protein or a conservative variant thereof that exhibits a decreased tendency to self-aggregate in an α S seed amplification assay (SAA). The expression vector comprises a nucleic acid sequence coding for human α S protein or a conservative variant, the nucleic acid sequence comprising codons that have been optimized to produce human α S protein or a conservative variant when expressed by a host cell such as *E. Coli*. The codons have been optimized to avoid amino acid misincorporation in the expressed protein. Methods for purification of the expressed protein are also provided.