mRNA-PROTEIN FUSIONS FOR IN VITRO PEPTIDE AND PROTEIN SELECTION

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In vitro selection provides a powerful approach to isolate molecules with desired functional properties. We have developed a system to perform peptide and protein selection entirely in vitro using mRNA-protein fusions, protein molecules covalently attached to the mRNA which encodes them. Recent improvements in the synthesis of fusions, demonstrate that proteins ranging from one to more than 30 kd can be synthesized as their corresponding mRNA-protein fusion. These improvements provide ready access to libraries containing more than 1013 individual peptides or proteins. Experiments with peptide epitopes indicate that recovery of sequences from fusion libraries is very efficient, eliminating the need for the high copy number required by some other techniques. The application of the fusion system to peptide and proteins selections will be discussed.