



**FIGURE 1.** Engineering of proteins based on structural information. Three-dimensional structural information is an essential guide for targeting randomizing mutagenesis to regions of proteins presumed to be critical for function. This scheme depicts two examples of successful strategies for *in vivo* and *in vitro* selection of desired variants from large combinatorial libraries, with the dashed arrows indicating the flow of information. The outcome of such experiments will also yield new information about structure and protein interactions. (Reprinted, with permission, from Kast and Hilvert 1997 [©Excerpta Medica Inc.] )

*Protein-Protein Interactions: A Molecular Cloning Manual*, 2nd Ed., © 2005 by Cold Spring Harbor Laboratory Press, Chapter 9, Figure 1.