Final Recommendations of the NIAAA Extramural Advisory Board
'Gene X Environment Interactions'
Aug 30-31, 2004

The committee reached consensus that the field is not ready for large scale studies in gene X environment interactions in humans at this time. However it was recommended that the following issues needed attention prior to the development of clinical studies in this area.

1. Identification of specific genes related to alcohol dependence vs. drug dependence vs. general susceptibility to psychiatric disorders. Studies should continue identifying genes in human and animal studies, as well as identify pleiotrophic and epistatic effects. It is important to understand genetic background in animals and ethnic differences in humans as they interact with select genes. Determining whether the QTLs and genes found in animals are similar to what has been identified in human studies is recommended. Determine if gene expression studies in animals parallel any of the findings in humans.

2. Better characterization of relevant phenotypes of alcohol use disorders (AUD) in humans and animals using well thought out strategies. Identify phenotypes that translate between humans and animals.

3. Identifying the most important environmental factors in humans and animals. Identify or develop instruments that can survey environmental factors in humans. Explore the effects of early life experiences and rearing environments in animals on phenotypic and gene expression.

4. Add environmental measures to existing genetic studies where genotyping has already been accomplished. Add genotyping to particularly informative studies where there are also efforts to characterize the environment. Determine how G X E can be indexed in treatment studies and normal "aging out" of drinking, determine what interactions are optimal for recovery from AUDs.

5. Determine how development interacts with G X E interactions in humans and animals. It seems likely that exposure to specific environments may be more potent on gene expression during certain times of development such as prenatal, early post natal, and up to early adulthood. Also "environment" may include early exposure to alcohol, nicotine and other drugs.

6. Develop a roadmap for studies in G X E that would address issues such as design and development of relevant mathematical methods to detect effects, so G X E interactions can be correctly identified and assessed.