

# **Adaptation of the BG1Luc Estrogen Receptor Transactivation Test Method to qHTS: Comparison of Results from Both Methods**

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In 2011, the National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods nominated the BG1Luc estrogen receptor (ER) transactivation (TA) test method (BG1Luc ER TA) to Tox21 to be adapted into a quantitative high-throughput screening (qHTS) format. The Tox21 collaboration, an effort by the National Toxicology Program, NIH Chemical Genomics Center, Environmental Protection Agency, and Food and Drug Administration, was formed to advance toxicity testing by shifting from traditional *in vivo* tests to *in vitro* methods. A major goal of Tox21 is to prioritize chemicals for in-depth toxicity testing. One approach for prioritization is to use qHTS cell- and biochemical-based assays to construct concentration–response curves for thousands of chemicals. The Tox21 consortium adapted the BG1Luc ER TA method to a qHTS format. Data were generated for approximately 10,000 chemicals with both the agonist and antagonist versions of the qHTS method. Seventy-six chemicals were tested with both the BG1Luc ER TA manual and qHTS methods. These data were used to evaluate the degree to which classifications of test chemicals with the manual and qHTS methods matched the classifications for performance standards (accuracy) and the degree to which the classifications were identical between the two methods (concordance). Agonist and antagonist methods produced 97% to 100% accuracy and 93% to 96% concordance, respectively, demonstrating that the performance of the qHTS format is comparable to that of the validated BG1Luc ER TA method. (ILS staff supported by NIEHS contract N01-ES 35504.)