

# ToxScreen™ Reports

An application of computational predictive toxicogenomics.

**With ToxScreen™ Reports, it's possible to:**

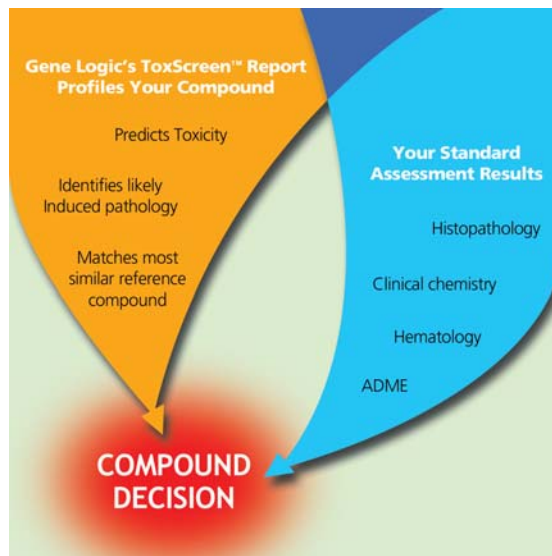
- Assess potential human risk earlier using animal study gene expression data
- Prioritize lead compounds using gene expression toxicity assessment
- Rank and advance leads with the most promising clinical profiles
- Identify additional clinical parameters to design more informative preclinical studies

**Assess your compound's potential toxicity with a simple 24-hour study.**

ToxScreen™ Report combines powerful, statistically validated and field tested gene expression-based predictive toxicogenomic modeling with expert analysis to provide you with a report on your leads and their potential toxic liabilities. That means you have access to more comprehensive compound profiles earlier in the process - before initiating preclinical studies and before large investments are made. It all starts with a simple 24-hour study.

But the utility of ToxScreen™ Reports doesn't end there. They are just as informative for testing backup compounds in clinical development. You choose when and how to best apply ToxScreen™ Reports, and Gene Logic will do the rest.

When used in conjunction with other research data, ToxScreen™ Report results help identify and advance compounds with the best success profiles (Figure 1). This enables you to make more informed decisions on which compounds to advance, saving time and improving productivity.



**Figure 1:** The ToxExpress® System includes clinical parameters as well as gene expression data on hundreds of reference toxicants. Using this information in conjunction with other available research data enables you to see a more comprehensive compound profile.

**Easy access to proven toxicogenomic tools.**

ToxScreen™ Reports' flexible configurations allow you to access powerful toxicogenomic tools efficiently without a large investment in the technology. Simply supply a compound or treated tissues or RNA to Gene Logic, and we will generate the gene expression data and assess your compound. Alternatively, send the Affymetrix gene expression data for compound assessment.

Through extensive testing, Gene Logic has developed a study design that is optimized for dose, time points, and replicate samples to achieve the most reliable and accurate outcome. A typical analysis requires 20 samples: 10 treated and 10 vehicle controls. In some situations, an even simpler study approach can be applied. Since its inception, ToxScreen™ Reports have become a routine, yet critical analysis employed by Gene Logic's ToxExpress® System customers.

#### **ToxScreen™ Report contain actionable results.**

Each ToxScreen™ Report assesses tested compounds and summarizes the findings for:

- Overall toxicity assessment
- The most likely pathology induced
- The most similar reference compounds from our extensive ToxExpress® System that align with the tested compound

These results leverage gene expression and clinical data from over 12,000 vehicle control and drug-treated samples residing in Gene Logic's ToxExpress® System (Figure 1).

In combination, these results provide a reliable picture of potential human risk (Figure 2) and can even help determine if your compound has species-specific liabilities. The results may help direct and focus study designs to collect evidence that may be otherwise overlooked or that may require additional studies, potentially saving time in regulatory reviews and reducing the number of preclinical studies.

#### **A window into mechanistic information.**

Each ToxScreen™ Report includes additional information that can help you with further investigations. Changes in gene pathways relative to the vehicle controls, coupled with the pathology and matching compound results, provide a starting point for mechanistic investigations. What's more,

you receive the gene expression data files complete with annotations (GO ontology, Unigene, GenBank, Pathway and others) for each fragment for an on-site evaluation, should you wish to perform some of these analyses yourself. And if your needs extend beyond an initial toxicity assessment, Gene Logic can help by completing an extensive molecular analysis of your compounds gene expression data.

#### **Figure 2: One Analysis: Three Powerful Results**

Gene Logic completes gene expression-based predictive analysis on your compound. Example report findings are provided below:

1. Your compound's gene expression suggests that it is likely non-toxic.
2. The predicted pathology is as an inducer/enlarger: not necessarily a liability in humans.
3. Your compound is most similar to Phenobarbital, one of hundreds of drugs that have gene expression profiles within the ToxExpress® System:
  - Phenobarbital may result in rat specific thyroid tumors during chronic studies.<sup>1</sup>
  - Phenobarbital is well tolerated in humans.<sup>2</sup>

*How you might apply results: Include thyroid hormones in clinical pathology panel during preclinical studies.*

1. McClain, RM (1989), *Toxicol Pathol* 17(2): 294-306  
2. PDR 2003.

#### **ToxScreen™ Reports. The possibilities of a simple study with far-reaching results.**

For more information about how ToxScreen™ Reports can help identify and advance your compounds, call 1-800-GENELOGIC to talk to your Business Development or Customer Support representative, email us at [info@genelogic.com](mailto:info@genelogic.com), or visit us at [www.genelogic.com](http://www.genelogic.com).



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