

BioExpress® CNS Suite

Mine the depths of Central Nervous System diseases

A major barrier to Central Nervous System (CNS) therapeutic discovery research has been the lack of access to human tissues. The benefits seen with microarray gene expression technology in other areas of therapeutic discovery have been largely unavailable for CNS applications due to the difficulty in obtaining and processing these tissues. That's why Gene Logic developed the BioExpress® Central Nervous System Suite, incorporating internal processes that meet the stringent quality standards required for performing mRNA-based studies of the human central nervous system.

The BioExpress® CNS Suite, a subset of the data and information from the BioExpress® System, contains gene expression data from well-documented controls, psychiatric and neurodegenerative diseases. Most samples are from the brain, obtained under constrained post-mortem intervals from autopsy donors, and identified under strict protocols by qualified neuropathologists. Diagnoses are based on rigorous clinical standards and all pathology metrics supporting the diagnosis and classification are provided together with the gene expression data. Each disease sample is also accompanied by an extensive clinical history including neurological, psychiatric, laboratory and treatment history. Complementing the human tissue information is gene expression data obtained from rodent and stem cell experiments that explore CNS disease models and the pharmacogenomic effects of known therapeutic compounds. All of this information comes packaged with a suite of software tools that allows in-depth data mining and analysis.

Fast, Thorough, and Comprehensive

The BioExpress® CNS Suite enables researchers to:

- Rapidly and accurately compare global gene expression profiles between diseased and matched control tissues over multiple cortical and subcortical regions from the same donor brain.

BioExpress® CNS Suite Disease Coverage:

- Schizophrenia
- Major Depression
- Addictive Disorders
- Alzheimer's Disease
- Parkinson's Disease
- Bipolar Disorder

- Identify and validate potential drug targets using a multiple interrogation approach combining *in silico* analyses of human diseased tissues and rodent disease models with *in vitro* human experimentation.
- Identify overlapping expression patterns to find shared pathways across multiple CNS diseases, expanding the potential utility of drug targets and therapeutic agents.
- Compare proprietary compounds to the benchmark rodent and stem cell studies that utilize off-patent prescribed compounds.

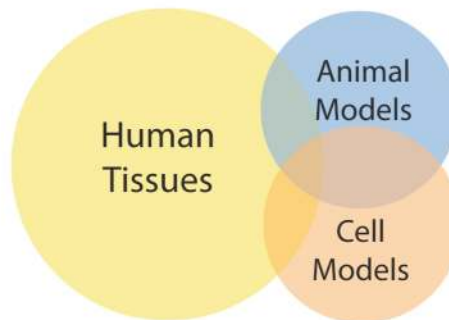


Figure 1. Providing gene expression and clinical information from human tissues and complementary drug-treated animal and cell models for pharmacogenomics studies.

In-Depth Analysis of CNS Disease

Researchers can begin their exploration into the psychiatric and neurodegenerative diseases represented in the BioExpress® CNS Suite by conducting *in silico* analyses over multiple cortical and subcortical regions per indication. Brain regions were selected for study based on published literature and imaging, such as MRI, to reveal areas believed to be associated with a specific disease state. Expression information from drug-treated rodent and stem cell disease models provide researchers with an independent approach for confirming differential expression results obtained from human disease and matched control tissues. Examples of the over 5,500 tissues available for analysis include 38 different anatomic regions of the human brain, such as:

- Amygdala
- Prefrontal Cortex
- Hippocampus
- Cerebellum
- Frontal Lobe of Cortex
- Parietal Lobe of Cortex
- Temporal Lobe of Cortex
- Occipital Lobe of Cortex

Comprehensive Clinical Data

BioExpress® CNS Suite expression data is accompanied by comprehensive clinical histories for each donor, including all aspects of disease management up through post-mortem analysis. The information captured within the clinical annotations includes: full medical history, psychiatric observations, cognitive measurements, drug treatment regimens and post-mortem interval times.

Information on animal and stem cell studies includes well-documented experimental design and results. Photomicrographs depicting lineage differentiation coupled with biochemical assay results are also included, along with neural stem cell studies. In psychiatric disease model studies behavioral observation for each rodent is included.

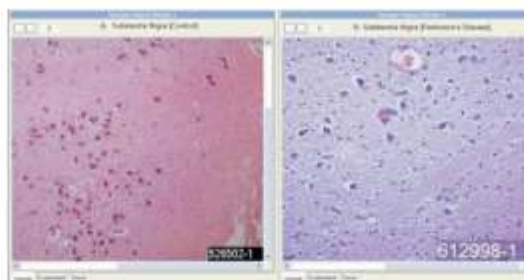
Robust, Reliable, and Reproducible Analysis

Gene Logic generates gene expression data using one or more types of Affymetrix GeneChip® microarrays. Use of standard Affymetrix processing protocols ensures that the final gene expression data are comparable with those generated in the customer's environment. Gene Logic's proprietary processes and numerous quality checks ensure that only the highest quality data are contained in the BioExpress® CNS Suite. The result is a robust, reliable and reproducible analysis, capable of comparative measurements.

Powerful Tools for Precise, Customized Results

The BioExpress® CNS Suite's analysis platform is the Genesis Enterprise System® Software, which contains hyperlinks to various public databases and features powerful tools for:

- Analysis and visualization of expression levels of genes and ESTs across diseased, normal and treated tissues.
- Visualization of expression results across signal transduction and metabolic pathway maps with links to more detailed information about specific genes of interest.
- Chromosome mapping.
- Seamless integration with additional tools from other suppliers for clustering, statistical analysis and graphic display.



Property	Value, reported as String
Living arrangement	Private home with spouse, lived in US most o
Marital status	Married x 21 yrs (2nd marriage)
Catheterized	No
Last recorded temperature	99 F
Resal O2	Yes
Auditory or visual hallucinations	Yes
Autonomic dysfunction	No
Bradykinesia	Yes
Dementia	No
Displays hyperactive behavior with no purp.	No
Displays sexual misbehavior	No
Falling	Yes
Hoehn and Yahr stage	S
Increasingly apathetic and dull	No

Figure 2. Histopathology slides at 10X magnification with additional clinical details for donor at time of sample acquisitions. A), Normal Substantia Nigra. B), Degenerated Substantia Nigra from donor with Parkinson's disease per pathology report. "Substantia Nigra shows prominent neuronal loss with few remaining pigmented cells. Some extravastated melanin and occasional Lewy bodies c/w Parkinson's Disease."

Flexible Solutions

Gene Logic offers a wide selection of gene expression information solutions in a variety of configurations to meet your scientific and budgetary needs. Customers may gain access to data from individual samples, to the entire BioExpress® System, or to a subset of the BioExpress® System, via one of our therapeutic area-specific database suites:

- Atlas Reference (Normal Healthy Tissues)
- Cardiovascular
- Central Nervous System
- Inflammation
- Metabolic
- Oncology

Our information products may be licensed on an annual subscription basis or may be licensed on a perpetual basis, depending on your needs.

For more information about Gene Logic's flexible BioExpress® System solutions, including a product demonstration, call 1-800-GENELOGIC.



www.genelogic.com

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