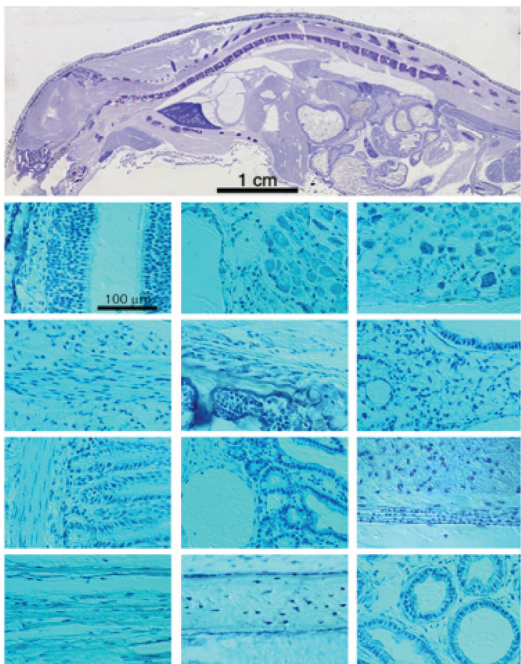


Cytochem is a Specialty Contract Research Organization focused exclusively on providing cutting-edge expertise and services in molecular histology on frozen tissues from preclinical to clinical applications. Established in 2001, the company has developed a unique platform that allows investigators in academia and the Life Sciences industry to obtain a rapid and highly detailed analysis of gene/protein expression signatures with exact cellular identification (GESig™). Because of its highly concentrated focus, Cytochem is capable of delivering premium quality products and services at a reasonable cost and efficient turn-around times.

### Core expertise and technologies:

Cytochem has a unique technology platform called Gene Positioning System™ that is finely tuned to provide rapid and reliable information with a high impact on strategic decisions from science to business!

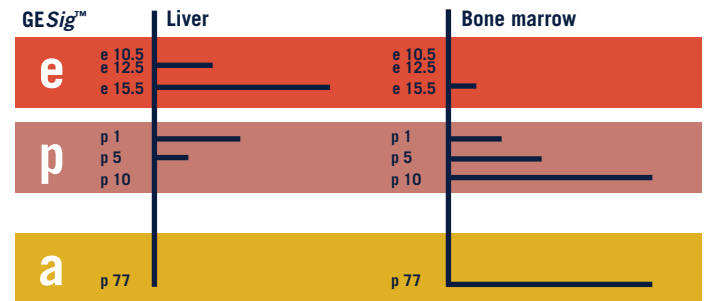


### Frozen Tissue Sections

Cytochem works mostly with frozen tissues since they are most representative of the native state and the richest source of biomarkers of all types. Methods based on paraffin maintain good morphology but lose a significant portion of molecular targets and biomarkers. Cytochem has pushed the limits of frozen tissue methods and routinely obtains outstanding morphology as illustrated in the figure above (lower panels are magnified structures from the mouse whole body section).

### GESig™

The leading Gene Expression Signature that provides the most comprehensive and detailed spatio-temporal expression analysis for single or multiple gene sets.



Example of a canonical GESig™ for a gene involved in hematopoiesis, with early expression in liver and adult expression only in bone marrow. Horizontal bars represent relative levels of expression. **Legends: e = embryo; p = postnatal; a = adult.**

The Gene Positioning System™ is built upon a suite of proprietary methods and tools which include:

- Advanced frozen tissue technology
- Mouse whole-body sectioning
- Tissue microarrays (TMA)
- Full ontogeny tissue arrays from ovum-to-adult™
- Multiple detection methods for various bio-molecules
- Validated expertise in microanalysis and data interpretation

### Sufficient And Necessary Tissue Arrays - SANTA Products

Cytochem offers a unique and comprehensive library of mouse whole-body and multiple tissue arrays, covering all stages of development from ovum to adult.

SANTA represents a line of histological slides with precisely designed tissue layouts for maximal organ/structure coverage and cost-efficient processing. Cytochem slides can be used for in situ hybridization (ISH), immunohistochemistry (IHC), binding assays or autoradiography. These high-end-of-the-shelf products allow Cytochem to rapidly deliver top level intelligence like no one else.

### Full spectrum of services from bench top to scientific report:

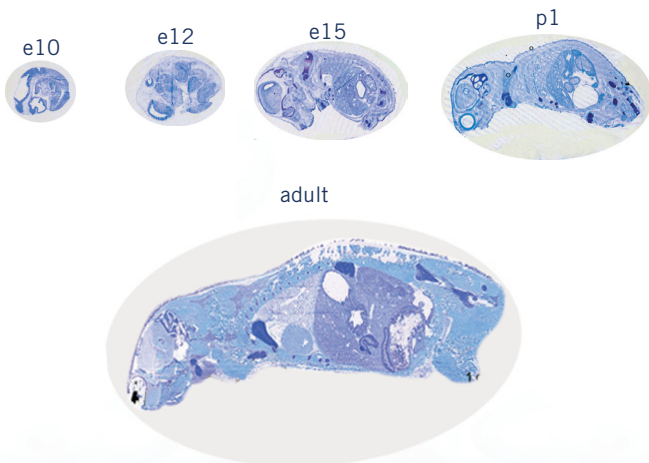
- Complete laboratory support:
  - tissue preparation and cryo-sectioning
  - probe design, synthesis and labeling
  - ISH/IHC assays with relevant controls
- Complete scientific support and data interpretation
  - experimental design
  - detailed microanalysis by certified experts
  - identification of expression sites and specific cell-types
  - scientific report with publication-ready figures

## Multi-gene analysis and screening capabilities

Sequential adjacent cryosections enable the simultaneous and comparative expression analysis of multiple genes, biomarkers and proteins. In contrast to DNA microarray strategies, Cytochem's platform displays an unmatched cellular resolution that makes it a powerful companion technology to all the high throughput genomics assays.

Cytochem has developed specific SANTA panels for screening purposes allowing the rapid characterization of larger sets of genes. This higher throughput helps identify the most valuable and promising candidates. The data generated by Cytochem is crucial to establish R&D priorities and provides bona fide support for patent protection.

**We enable our partners to prioritize and accelerate their R&D programs by performing cell-specific expression signatures of therapeutic targets and biomarkers in preclinical and clinical samples.**

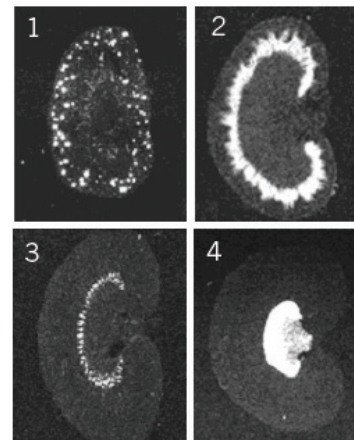


## The evolution of expression signatures: Full Ontogeny Screens

Many genes involved in disease play a major role during development but become dormant in adults. Disease mechanisms are often related to the reactivation of ontogenic cellular processes such as proliferation, migration, hypertrophy and apoptosis. Documenting gene expression patterns during development provides therefore valuable clues for gene function annotation and potential clinical utility. **Legends: e10, e12, e15 = embryo days 10, 12 and 15; p1 = postnatal day 1; ad = adult**

## Multi-gene expression signatures

Four (4) kidney-related genes were identified through a microarray approach with little additional discriminating features. However, Cytochem's cellular localization strategy pointed to very different functions within the kidney, orienting further research and patenting strategies. The unmatched cellular resolution of Cytochem's platform is the perfect companion strategy for DNA chip and microarray screening methods.



## Preclinical applications

- Functional genomics
- Target or biomarker discovery and validation
- PK/PD analysis
- Validation/characterization of transgenic animals
- Toxicogenetic models
- Expression profiling in animal models

## Clinical applications

- Point-of-care frozen sample preparation methods and tools
- Standardized freezing methods for needle and core biopsies
- Proprietary methods for preparing frozen tissue microarrays with clinical samples
- Frozen tissue bio-banking SOPs and instruments
- Tissue collection and preparation SOPs for clinical trials

**Cytochem is entirely dedicated to the highest standards of quality and excellence in research and customer service. All projects are carefully tailored to each client's needs and deliver the right results, on budget, at the right time!**