

## CytoSure Software Comparison Guide

CytoSure Interpret Software continues to be cited as a primary reason for purchasing CytoSure arrays. Our dedicated software development team are continually implementing enhanced features and capabilities in response to new product development and customer feedback. But don't just take our word for it — take the CytoSure challenge and see how your software compares.

For more information about CytoSure Interpret Software and to request a demonstration, please contact [products@ogt.com](mailto:products@ogt.com).

### Database

Feature	OGT CytoSure Interpret Software	Supplier A Software	Supplier B Software	Notes
SQL database with multi-write functionality	✓	✓	✗	Having a database not only allows data storage, a good database allows data to be easily searched, filtered and analysed. It also enables data to be backed up and re-installed. CytoSure Interpret Software provides a practical and flexible solution to data storage, retrieval and back-up as it is compatible with a number of SQL-based relational database management systems (Microsoft SQL Server, Oracle, MySQL). This also allows multiple researchers to use and write to the software simultaneously across a network, thereby increasing analysis throughput. The software can be integrated with existing IT infrastructure, enabling IT departments to easily build the CytoSure Interpret Software database into their existing back-up procedures, ensuring data integrity. The structure of CytoSure Interpret Software allows multiple users to write to the database simultaneously, allowing multiple samples to be worked on at any one time, increasing productivity.
Database sharing between sites	✓	✗	✗	With the appropriate IT infrastructure, it is possible for a CytoSure Interpret Software database to be accessed by multiple sites, in different physical locations allowing more effective collaboration and more powerful analysis.
Region query searching in 'real-time'	✓	✓	✗	The ability to perform a region query is an invaluable tool in the analysis of an individual's array-CGH data. This function is useful to identify other samples in the database with similar or identical calls and for determining the frequency of a given call in the database. In CytoSure Interpret Software, database queries can be made in 'real-time' without the need to close samples before searching. The user is able to view all the calls made within a region in a stacked format with an appropriate identifier. This dramatically decreases the time involved to analyse a case.
Speed of database searching	+++	+++	+	Database searches are easy to do in CytoSure Interpret Software, with results returned instantaneously.
Robust database with no storage limit	✓	✗	✗	The robust structure of the CytoSure Interpret Software database does not restrict the size or storage limit of the database. The amount of data stored is limited only by the internal IT hardware available.
Database back-up facility	✓	✗	✗	In some analysis software packages, the only method of backing up the database is to copy the file folder (which does not have a proper audit trail) to another location. CytoSure Interpret Software has three, fully auditable options for flexible data back-up. These options are full, partial or mini allowing institutes to select the optimal data back-up for their needs.

## Quality control tracking

Feature	OGT CytoSure Interpret Software	Supplier A Software	Supplier B Software	Notes
QC metric tracking	✓	✓	✓	An important aspect of ensuring good quality data is QC metric tracking. CytoSure Interpret Software allows users to track QC metrics over time and presents the data in an easy to understand graphical format. This enables easy identification of problematic samples.
QC metric and reagent lot number trend display	✓	✗	✗	In addition to tracking QC metrics over time, it is also important to compare different reagent batches. In CytoSure Interpret Software, QC metrics can be displayed for each reagent lot number, and different lot numbers can be compared.
Audit trail	✓	✓	✗	CytoSure Interpret Software records all modifications of sample and experiment information in order to provide a complete audit trail for each case. The software also maintains a log of all user activity including viewing of sample information (not necessarily involving modification).

## Data analysis workflow

Feature	OGT CytoSure Interpret Software	Supplier A Software	Supplier B Software	Notes
Image analysis	✓	✓	✓	Image analysis allows you to extract the signal intensity values from a TIFF image. CytoSure Interpret Software has an additional module which can automatically pick up TIFF images, extract the raw data and load it into the analysis workflow in a single standardised process.
Automatic workflow	✓	✓	✓	An automatic workflow allows you to follow a step-by-step process guiding you through the analysis. In CytoSure Interpret Software, the "Accelerate Workflow" guides you through the whole process both simplifying and standardising data analysis between different users.
User definable protocol	✓	✓	✗	In CytoSure Interpret Software the various settings required for data analysis are stored within the analysis protocols. It is anticipated that a fully trained "expert user" would define these settings to form a protocol, and, once created, a protocol cannot be modified. During analysis, routine users open cases in "Workflow" mode, meaning that none of the protocol settings may be modified during analysis, ensuring consistency between cases. When a sample is analysed, the name of the protocol is also reported, enabling auditing of the exact settings used to analyse every case. Modification of analysis settings can be restricted to particular users via the flexible permissions interface.
Pedigree analysis	✓	✗	✗	In CytoSure Interpret Software it is possible to link samples together, generating a pedigree chart. This allows the software to automatically determine the inheritance status of aberrations if parent aberrations are already in the database.
Trio analysis	✓	✗	✗	To look at the inheritance of aberrations and to determine if a mutation is <i>de novo</i> , it is important to analyse parental samples alongside the affected child. If parental data is available, it may be loaded into CytoSure Interpret Software and linked to the child's results.
Batch processing	✓	✓	✓	The amount of hands-on time required for data analysis of microarray data is considerable. To minimise the data loading and initial analysis CytoSure Interpret Software has a batch processing option where multiple data files can be loaded and then processed sequentially without input from the user.

## Aberration analysis and detection

Feature	OGT CytoSure Interpret Software	Supplier A Software	Supplier B Software	Notes
Peer reviewed aberration detection algorithm	✓	✓	✗	It is important to understand how your data is analysed and what algorithms are used. CytoSure Interpret Software uses the Circular Binary Segmentation algorithm as reviewed in: Venkatraman E.S. and Olshen A.B. (2007) <i>Bioinformatics</i> 23(6) p657-663
Automatic aberration classification	✓	✗	✓	Using information available in online databases such as DECIPHER and settings defined by the user, CytoSure Interpret Software is able to automatically perform an initial classification of any aberration detected, speeding up analysis time.
Waviness detection metric	✓	✗	✗	For the majority of processed samples, the $\log_2$ ratio is evenly distributed around zero. Occasionally some samples exhibit a characteristic "waviness" around the $\log_2$ ratio = 0 line. This waviness has been shown to have a negative effect on data quality. CytoSure Interpret Software detects such samples using a unique waviness detection metric.
Mosaic detection	✓	✓	✓	Aberration detection in mosaic samples is important and provides additional, valuable information about the sample. In CytoSure Interpret Software there is the option to set specific thresholds to detect aberrations in mosaic samples. Aberrations detected using these thresholds are then reported separately and identified as being mosaic.
Aneuploidy Summary Plot	✓	✗	✗	In CytoSure Interpret Software, this feature provides a rapid method for averaging all probes on each chromosome and plotting a box and whisker plot. Using this plot allows the easy and rapid detection of aneuploidies.
Custom tracks	✓	✓	✓	An important part of the analysis and reporting process is the understanding of the biological significance of any aberrations present in the sample. In CytoSure Interpret Software multiple tracks are available as standard to facilitate this interpretation. It is also possible to create custom tracks and to view data present in customer databases.
Data masking	✓	✗	✗	In some cases it is preferable not to interpret specific regions of the genome. In CytoSure Interpret Software it is possible to modify the design file allowing specific regions of the genome to be "masked".

## Data import/export

Feature	OGT CytoSure Interpret Software	Supplier A Software	Supplier B Software	Notes
Batch import of experimental information	✓	✓	✗	Loading important experimental data can be a time-consuming step. The hands-on time required can be minimised using CytoSure Interpret Software through the facility to batch import experimental information.
Load historical (other platform data)	✓	✓	✗	When switching microarray platforms it is important to be able to keep historical data. With CytoSure Interpret Software our software team will create a database of all your existing data regardless of platform ensuring that switching to OGT is as seamless as possible.
Automatic upload to Cartagenia	✓	✗	✗	Many researchers use Cartagenia Bench software which allows phenotypic and genetic information to be linked. This information can then be shared between users. In order to facilitate easy upload to Cartagenia Bench, CytoSure Interpret Software has an automatic upload feature.

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