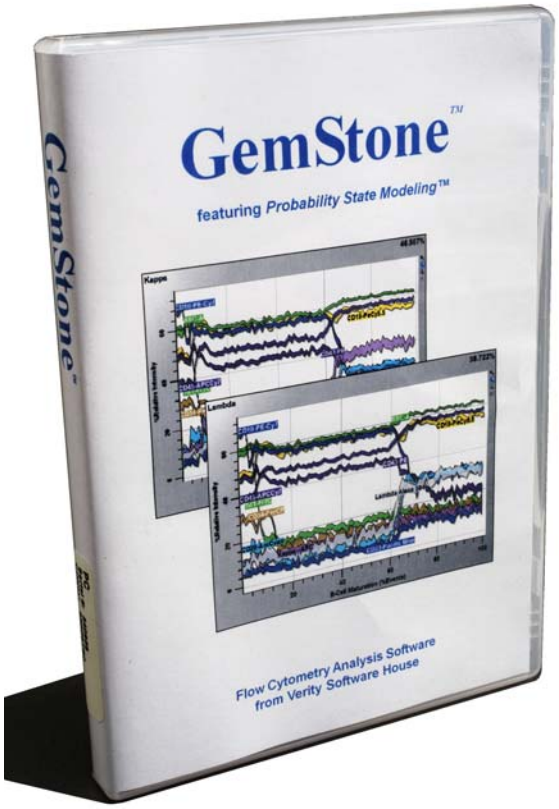
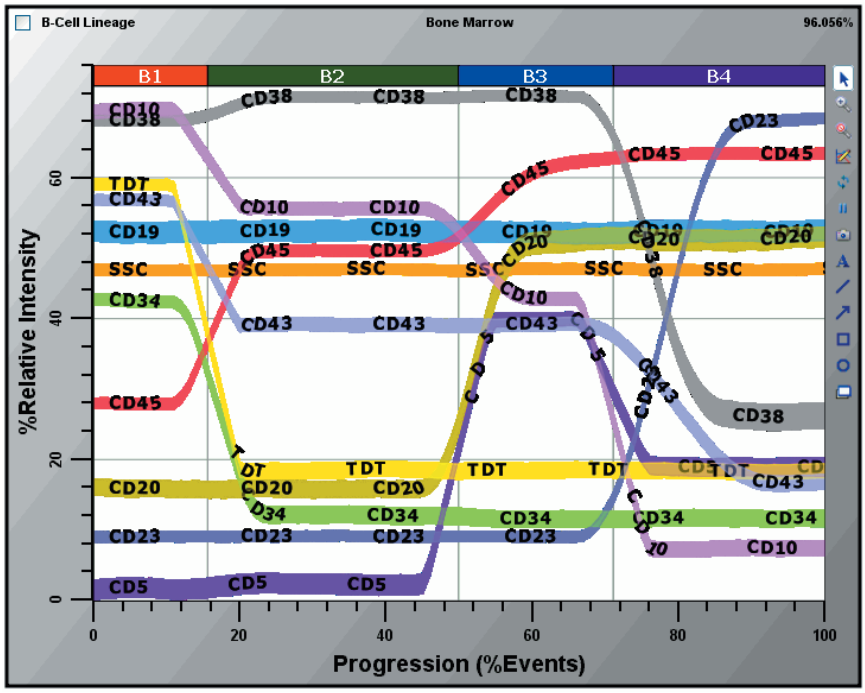
GemStone™





A New Paradigm for Flow Cytometry Analysis

GemStone™ is a revolutionary new paradigm for analysis of high-dimensional, flow cytometry data.

Based on the patent-pending Probability State Modeling™ system, GemStone eliminates the problems that have faced flow cytometry analysis for decades, providing a solution that is science-based, data-driven, scalable, and reproducible.

GemStone is now available! You can get a preview of the technology at many upcoming scientific meetings and view video tutorials at www.vsh.com.

Features:

- Novel analysis approach defines populations without gates.
- Unlike conventional analysis, GemStone's Probability State Models actually *improve* with additional parameters.
- Parameter Overlay plots present *all* parameters in a simple, correlated display - easily understood by anyone with a basic understanding of biology.
- After modeling a few known markers, GemStone can show you the expression of any number of unknown markers.
- The free, downloadable trial version is also a reader, allowing GemStone analysis documents to be shared among collaborators.

How does GemStone™ work?

An additional parameter based on states and probabilities is defined using a patent-pending Probability State Modeling™ system. Referred to as State Index, this new parameter is used to correlate all the other parameters in the system.

Why is it better?

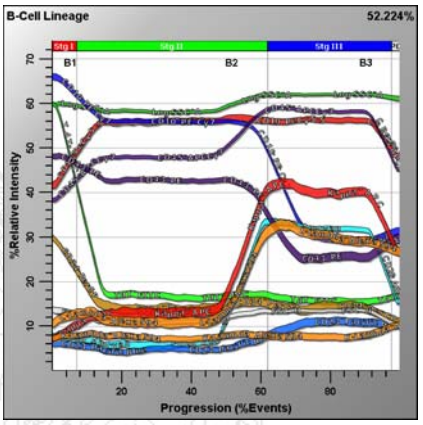
Subjective gating and associated errors are eliminated. As a result, the model actually improves with additional parameters.

Unlike traditional approaches, GemStone's Probability State Model accounts for population overlaps in multidimensional data. And because it is probability based, GemStone eliminates subjective gating decisions that have been inherent in flow cytometry analysis for decades.

Analysis with Probability State Models allows scientists to understand the correlated expression of markers in samples. And the ground-breaking Parameter Overlay plot presents relative intensities of all parameters and population statistics in one, simple-to-understand graphic. Multiple samples may be combined into one coherent analysis.

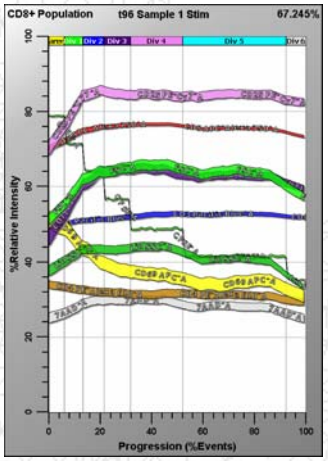
GemStone presents a simple, easy-to-interpret graphical respesentation of its analysis.

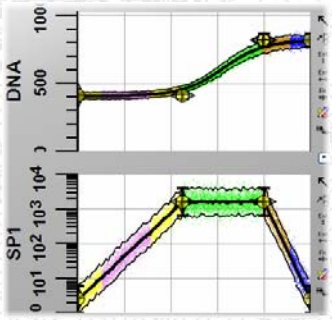
In this application, a complete B-Cell lineage analysis with 11 parameters is shown. The correlated expression of markers exposes the key transitions in stages of development and differentiation.



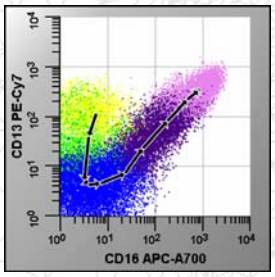
The X-axis in the Parameter Overlay plot represents 100 states of progression. This allows percentage of events to be directly interpreted from the graph.

In this activation study, GemStone analyzed cell division as a function of CD4 and CD8 expression. As cells divide, the CFSE expression steps down by a factor of 2. The plot illustrates the relative expression of other markers in the study.





Parameter profiles identify key transitions in the progression of a measured marker, defining the Probability State Model.



Directional vectors from the model add new information to conventional two-parameter plots, and show population overlap with coloring from the Probability State Model.

What else can it do?

State vector arrows and animations let you understand your data like never before. Data zooming, a powerful macro language, a batch system with a built-in database, and common parameter mapping are just a few of the many new and innovative features in GemStone.

How can I get it?

GemStone is available for purchase and download on our web store, or you may submit a standard purchase order to us. Because GemStone presents an innovative new way of looking at data, training is necessary. Go to www.vsh.com/products/GemStone for more information.

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