

## Genstruct Applying Epistemics Approach To 'Molecular World'

**By Karen Young  
Staff Writer**

Genstruct Inc. is approaching a drug discovery obstacle in a thoroughly modern way, that is, with what it calls "logical models" of biological systems designed to uncover and define compound mechanisms of action and disease mechanisms.

Its mechanism discovery platform is called Molecular Epistemics, with epistemics defined by Genstruct President and CEO Keith Elliston as "a formal field of study that is concerned with how you gain knowledge and how to use it for invention and discovery – it's described mainly from the human activity from which we invent things.

"What we've done is take an epistemic approach to what we're doing in the molecular world to try and understand drug function," Elliston told *BioWorld Today*. "So we've coined the term molecular epistemics and we're doing two things: gathering knowledge and putting it into a modeling format that allows us to use the entire set of knowledge. We have to then interrogate compounds and diseases to understand how they work, with the idea being proving and identifying biomarkers for compound development; and also for understanding which compounds will be effective in the clinical trials vs. those that won't be."

The Cambridge, Mass.-based company was infused with \$6.5 million in Series A funds in September, a round co-led by A.M. Pappas and Associates, of Research Triangle Park, N.C. Elliston expects its current funding to carry it "well into 2005," he said. Genstruct said it would use the money to expand its technical and business teams, build intellectual property around the company's technology and conduct internal discovery programs.

Genstruct was founded in 2001 by Noubar Afeyan, senior managing director and CEO of Flagship Ventures; Navin Chandra, formerly of Perot Systems; and Elliston.

Genstruct was really an outgrowth of Afeyan and Masterson's collaboration to form another company, Beyond

Genomics Inc., of Waltham, Mass., a company focused on large-scale, high-level modeling, Elliston said.

"They founded Genstruct to, No. 1, work with Beyond Genomics," Elliston said.

While Beyond Genomics and Genstruct have collaborated, Beyond Genomics was more focused on large-scale systems and information, while Genstruct is focused on going beyond statistics to model biological systems as a large network of logical interactions.

The companies have since gone their separate ways, with Beyond Genomics focused on an independent drug discovery path, and Genstruct focused on biological discovery rather than chemical discovery.

Still, Elliston said that Genstruct has a number of partnerships, some of which have included pharmaceutical companies, but confidentiality agreements prevented him from discussing details.

Asked why he thought Genstruct had been selected as a partner, Elliston said, "We're the only company that today can take and model a complete biological system and then use that model to interrogate it for compound and disease mechanism action using gene-expression data, protein-expression data, metabolite-expression data, and carbohydrate-expression data in one integrated way."

Genstruct's focus has been in disease areas that include oncology, blood disorders, metabolic disease and inflammation.

"What we really concentrated on were models of these [areas] so that we can be, in essence, modeling disease experts that can really collaborate effectively with people who have programs in these areas," Elliston said.

Earlier this year, Genstruct completed a successful oncology program with a preclinical candidate. The company also has worked in the area of dyslipidemia and adipose differentiation. It also has completed research in the area of androgen-resistant prostate cancer.

John Wilbanks, director of strategic marketing for Genstruct, said what the company is doing internally is vali-

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dated target discovery. Wilbanks said it starts with differential data sets so that gene, protein and metabolic changes can be linked up to determine how they are connected.

“[We look for] what are the reasons, what are the facts out there in the world that can connect those in the most supportable fashion,” Wilbanks said, noting that what you get as you iterate through those facts is that they “start to converge on a set of hypotheses.”

Ultimately, Genstruct enters the lab with those hypotheses and validates them.

The company has 15 employees, though Elliston expects that number to grow by 25 percent to 30 percent in the next six months. ■