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By Justin Petrone

NEW YORK (GenomeWeb) – EpiCypher, a Chapel Hill, NC-based bioscience company, is preparing a new microarray for epigenetics research.

CEO Sam Tetlow told *BioArray News* this week that the firm is developing a chip that can be used to do lysine methylation experiments. Lysine methylation is a post-translational modification of RNA-binding proteins. The process has been linked to a number of conditions including Alzheimer's disease.

While researchers have used a number of approaches, such as mass spectrometry, in the past to study this process, none of these methods have offered "high throughput and rich content delivery," according to Tetlow.

"Currently, no one can perform these experiments as there are no tools available to conduct analysis on lysine methylation in an array format."

While Tetlow declined to elaborate on EpiCypher's plans for the array, he said that the tool should become available some time next year, an addition to the company's growing menu of products for epigenetics research.

EpiCypher's current flagship platform is EpiTitan, its next-generation histone peptide array. Introduced last month, EpiTitan supports the high-throughput screening of effector protein interaction, antibody binding, and enzyme activity, according to the firm. Peptides on the array encompass over 95 unique modifications in the core histones – H2A, H2B, H3, and H4, and each array contains more than 265 histone peptides spotted 12 times each. On its website,

EpiCypher is offering the arrays with a list price of \$299, or \$1,199 for five arrays.

Since launching the platform, the company has been "inundated" with requests from interested customers, Tetlow said. He attributed the response to EpiTitan's "quality of results," including "precise readouts of binding specificity and versatility to run two antibodies on one slide, with the most number of unique peptide modifications available on the market."

EpiCypher earlier this year announced a grant competition through which it would fund five projects that involve the study of the role of histone modifications in physiologic or pathologic processes. For the studies selected, EpiCypher promised to provide EpiTitan arrays, histone modification screening services, and statistical analysis of protein or antibody binding profiles.

Last week, the company announced that it had awarded the grants to Feng-Chung Yang at Indiana University School of Medicine; Omar Abdel-Wahab at Memorial Sloan Kettering Cancer Center; Daiqing Liao at the University of Florida, El Bachir Affar at the University of Montreal; and Levi Blazer at the Structural Genomics Consortium.

Tetlow this week said the grants would support investigations into chromatin biology and epigenetics research, but declined to elaborate, citing a highly competitive academia arena, as well as confidentiality agreements with grant recipients.

However, the company hopes that the funded investigations and any resulting papers will demonstrate the ability of its platform, and encourage other customers to work with EpiCypher. Tetlow also hinted that the researchers might develop new applications on the firm's microarrays that could in the future be made more broadly available.

According to Tetlow, competition for the grants was high. He said that interest in EpiCypher's platform is coming from both industry, such as pharmaceutical and biotechnology companies, as well as academics.

"Interest is high now from academics, as the applications they are pursuing are novel and groundbreaking, which is more common from leading researchers," he said.

EpiCypher was founded two years ago to commercialize technology for chromatin and epigenetics research developed by investigators at Stanford University, MD Anderson Cancer Center, and the University of North Carolina. In addition to EpiTitan, the company also sells nucleosomes, recombinant histone binding proteins, peptides and antibodies, as well as peptide synthesis and peptide array screening services.

Prior to launching EpiTitan, the firm offered an earlier generation of histone peptide arrays called EpiGold. Tetlow differentiated the company's arrays from other peptide arrays on the market by the firm's manufacturing process, where it synthesizes and analyzes each peptide prior to spotting it on the array. Other peptide array manufacturers typically synthesize the peptides directly on the surface of the substrate.

According to Tetlow, all of the company's peptides are purified by high-performance liquid chromatography, and the identity of the peptide is validated using mass spectrometry. EpiCypher makes the validation data for its peptides available to customers.

"This level of quality control and peptide validation is not possible with other methods," said

Tetlow. "You have to take the word of the manufacturer that the peptides on the array are of high quality," he said. "Any claims made about peptide purity or quality are impossible to substantiate, because each spot on each array represents a unique peptide synthesis reaction."



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