GenScript Launches Neoantigen Specific Peptide Synthesis Service for Precision Immuno-oncology Therapeutic Development

New Service overcomes challenges of manufacturing difficult neoantigen peptides critical to personalized cancer vaccine and T-cell therapy generation

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PISCATAWAY, N.J, April 1, 2020 /PRNewswire/ -- GenScript, a world leading biotechnology company, today announced the commercial launch of its neoantigen peptide synthesis service for biotech and pharma companies developing personalized cancer therapeutics. The service builds on GenScript's work over the past year producing 2,500 highly difficult neoantigen peptides for more than 50 of the world's leading immuno-oncology companies.

Unlike traditional targets such as tumor-associated antigens, neoantigens are novel peptides only present within tumor cells and not in healthy tissue. Because of this, neoantigen-based immunotherapy stimulates stronger anti-tumor immune responses with fewer negative and off target effects than other immunotherapies. When generating personalized cancer vaccines or T-cell therapies, neoantigen peptides are critical for in-vitro functionality screening, pre-clinical safety analysis, and post-clinical efficacy screening; however, manufacturing these peptides is very challenging due to extreme hydrophobicity and other physiochemical properties.

GenScript partnered with several T-cell therapy and personalized cancer vaccine companies to develop the infrastructure to reliably manufacture difficult peptides for its neoantigen peptide synthesis platform. This effort resulted in several successful projects, most recently Avidea Technologies' SNAP vaccine platform, as reported in *Nature Biotechnology,* as well as a collaboration involving 3T Biosciences' proprietary T-cell therapy screening platform.

"3T Biosciences has been working with GenScript since 2017 to generate thousands of peptides to understand how T-cell receptors recognize their targets. With that information we can better understand how to identify novel targets in solid tumors and generate safe and effective T-cell receptors," said Marvin Gee, Ph.D., 3T Biosciences' co-Founder and Head of Target Discovery. "The 3T technology is multi-faceted due to the ability to uncover specificities in any T-cell- mediated disease, covering not only oncology but also allergy, inflammation, autoimmune disease, and infection, which is pertinent for the ongoing situation with COVID-19."

GenScript has been synthesizing peptides for more than 15 years, successfully delivering over 600,000 high-quality peptides - a 98 percent delivery rate - to more than 10,000 scientists worldwide. The company has developed multiple innovative synthesis technologies, including its patented NeoPre^{TM} neoantigen synthesis prediction algorithm. The algorithm is applied during neoantigen peptide synthesis to analyze a peptide's physiochemical properties (hydrophobicity,

charge, aggregation potential, etc.) in order to determine which of GenScript's technologies provides the highest chance of successful synthesis. From there, highly skilled GenScript scientists synthesize each peptide through the recommended methodology, ranging from automated microwave technology for fast turn-around time to manual liquid phase technology for difficult to purify peptides with high yields.

"GenScript is committed to developing innovative new synthesis platforms and bioinformatics tools to help our customers bring safe and effective life-saving treatments to patients more quickly and efficiently," said Xin Zhang, GenScript Biotech's associate director of peptide services. "Neoantigen peptide synthesis is significantly challenging, but by leveraging our microwave, solid, and liquid phase synthesis platforms along with our new NeoPre^{TM} production algorithm, we are able to consistently produce difficult peptides for cancer research and drug development."

Peptide production is guided by the diverse needs of each project, including number of peptides, yields, turnaround time, specialized quality control requirements, and pooling. GenScript's flexible approach allows for customization in ways that traditional GMP providers find difficult. For example, groups developing personalized cancer vaccines will often initially require large libraries of micro-scale peptides for functional validation of neoantigen candidates. Once identified, these neoantigen peptides will then need to be produced at large yields with extremely high purity in order to generate vaccine prototypes for animal studies.

GenScript's service also includes stage-specific tools and a library design program, which assists customers in creating their own peptide libraries. Currently, GenScript offers seven different types of libraries, including alanine scanning, overlapping, and T-cell truncation to help customers optimize the safety and efficacy of their neoantigen therapeutics.

For more information on GenScript's neoantigen peptide synthesis services, please visit www.genscript.com/neoantigen-peptide-service.html.

About GenScript

GenScript is the leading contract research organization in the world providing gene, peptide, protein, CRISPR, and antibody reagents globally. Since its founding in 2002, GenScript has grown exponentially through partnerships with scientists conducting fundamental life science research, translational biomedical research, and early stage pharmaceutical development. GenScript provides life science services and products to scientists in over 100 countries worldwide. The company is recognized as having built a best-in-class capacity and capability for biological research services, encompassing gene synthesis and molecular biology, peptide synthesis, custom antibodies, protein expression, antibody and protein engineering, and in vitro and in vivo pharmacology – all with the goal to Make Research Easy. For more information, visit www.genscript.com.

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