IntegrateRNA offers improved protein engineering capabilities through their sophisticated ncAA-tRNA modification system

NY, UNITED STATES, April 28, 2025 /EINPresswire.com/ -- The Creative Biogene division IntegrateRNA launched a novel platform that enables post-translational protein modification through the use of non-canonical amino acids and engineered transfer RNA. The new method enables exact placement of functional groups at specific protein locations which offers researchers effective instruments for protein structure and function analysis and manipulation.

Understanding the Technology Behind PTM Analysis

Proteins undergo chemical modifications following their synthesis when they experience post-translational modifications (PTMs) which affect their behavior and structure as well as their interaction capabilities. The IntegrateRNA platform employs genetic code expansion via amber codon suppression to insert ncAAs at specific protein sites. A range of functional groups including azide, alkyne, and ketone exist in ncAAs which allows for further chemical modifications. IntegrateRNA achieves improved efficiency and precision in ncAA integration by creating specialized tRNA molecules that match unique codon-anticodon combinations.

The described technique enables researchers to connect multiple functional groups to proteins through the use of fluorescent probes alongside bio-orthogonal reactive groups and affinity tags. These modifications create enhanced opportunities for protein labeling techniques and imaging processes as well as protein-protein interaction research.

Applications and Impact

Specific site modification of proteins extends the range of tools used in protein engineering. Protein engineering enables researchers to develop proteins with enhanced stability along with modified enzymatic functions and unique binding characteristics which supports research in synthetic biology and materials science. Biotechnology practitioners can use this approach to engineer proteins designed for specific industrial functions.

Future Perspectives

IntegrateRNA aims to progress its ncAA-tRNA platform through extensive ncAA exploration and advanced tRNA engineering technique development. Upcoming studies plan to expand protein

modification capabilities while making them suitable for large-scale applications which will enable various scientific studies related to proteins.

For more information, please visit: IntegrateRNA – Post-Translational Modification Services.

Marcia Brady
Creative Biogene
+1 631-386-8241
email us here
