GenNext TECHNOLOGIES

PRODUCT NOTE

Unrivaled Higher Order Structural (HOS) Analysis for Biopharmaceutical Discovery & Development

The Flash Oxidation (Fox™) Protein Footprinting System delivers significant advantages over traditional biopharmaceutical HOS methods. Using the Fox approach, your research programs will realize massive savings in time and money, robust and reproducible data generation and analysis, and a much simplified and faster workflow.

HOS Technology Gap

Scientists and regulators have become increasingly aware of the critical role that HOS plays in ensuring a biopharmaceutical's stability, safety, and function.

Although a variety of traditional HOS analysis methodologies are available, they have proven deficient in reliably predicting drug efficacy and safety.

Even the most high-resolution HOS methods come with significant limitations, such as difficult workflows, enormous costs, reproducibility issues, and the length of time needed to operate elaborate X-ray synchrotron beamlines or dangerous excimer lasers that employ hazardous KrF gas.

GenNext surpassed these limitations with the Fox Protein Footprinting System—a laser-free, compact system that easily performs all types of HOS studies using a Hydroxyl Radical Protein Footprinting (HRPF) approach that measures changes in protein typography.

With its simple workflow and integrated FoxWare™ Protein Footprinting Software, the results from the Fox-based platform are on par with the most advanced HOS techniques.

A Robust & Easy-to-Use System for HRPF Studies

The world's only benchtop HRPF platform, the Fox Protein Footprinting System is comprised of (from bottom to top):

Fluidics and Control Module:
Provides microfluidic sample introduction for HRPF processing.

Flash Photolysis Module:
A high energy pulsed plasma lamp system that supplants the use of synchrotron radiation or lasers.

Radical Dosimeter:
An in-line, capillary photometric absorbance detector that monitors change in reactant/product UV absorbance.

Product Collector:
An automated carousel that selectively collects properly labeled protein.

Compared to other HOS approaches, the Fox System is much easier to use, less expensive, uses less sample, and is relatively fast. The flexible system has no biopharmaceutical size limit, works with impure samples and flexible structures, handles many different aqueous buffers, and results in no back exchange/scrambling.

The data produced is extensive and the FoxWare Software easily generates actionable results so researchers can reiterate quickly, ultimately accelerating their drug pipeline while ensuring the safety and effectiveness of their biotherapeutic.

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Unrivaled HOS Analysis

Fox-Based HRPF Applications

The Fox™ Footprinting System provides actionable results throughout the drug discovery and development pipeline.

Fox HRPF applications in biopharmaceutical discovery include evaluating Rx Binding, mAb therapeutics, conformational analysis, and biosimilar assessment.

In the drug development phase, Fox technology can be used to study expression/harvest optimization, aggregation, thermal stability, and formulation.

Biopharmaceutical Discovery	Biopharmaceutical Development
Rx Binding Validation • Orthosteric • Allosteric • Conformational Change • GPCR cascade	**Expression/Harvest Optimization** • HOS Integrity at Peptide/Residue Levels • Differential Process Analysis
mAb Therapeutics • Epitope Mapping • Paratope Mapping • Affinity Determination	**Therapeutic Aggregation Studies** • Interactive Domains/Residues • Excipient/Amino Acid Effects
Conformational Analysis • Confomer Detection • Discrete Functional Analysis	**Thermal Stability Studies** • Thermal-Induced Changes in Conformation
Biosimilar Assessment • Candidate validation via HOS	**Therapeutic Formulation** • Concentration • Excipients • Delivery System

Next Steps

The discovery and development of successful biotherapeutics is dependent on understanding critical HOS factors.

The Fox Protein Footprinting System is the most robust, cost-effective, and easy-to-use platform for HOS analysis that can be leveraged across biotherapeutic discovery and development.

To learn more about how our solutions can benefit your biotherapeutic business, contact the experts at GenNext Technologies.

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Discover the Benefits of Protein Footprinting

Contact us for products and services to investigate biopharmaceutical structure, interactions, folding, aggregation, formulation, and delivery.

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