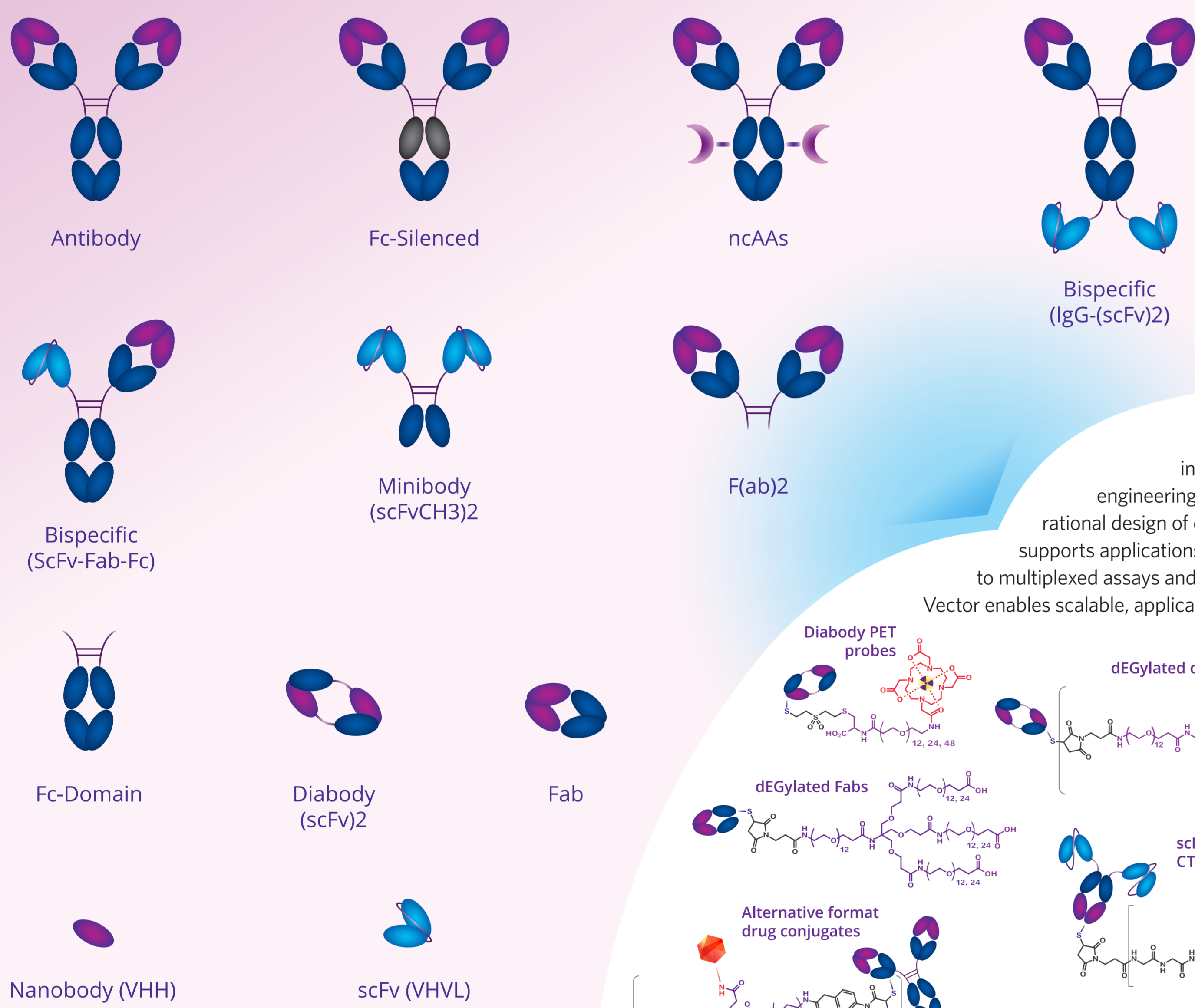


Synergistic Strategies for Biologic Design and Functionalization Using Modular Chemistry and Antibody Engineering

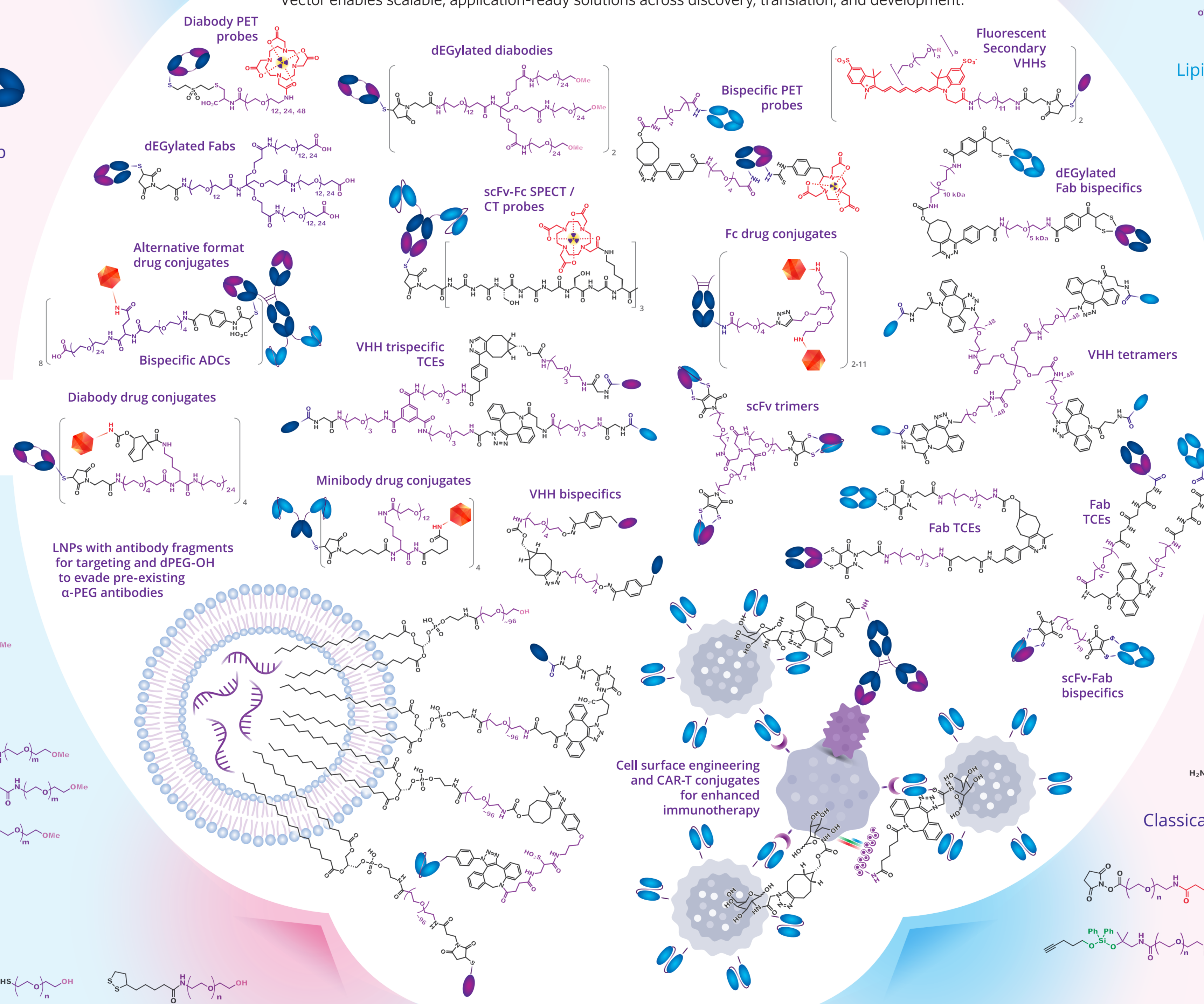
Abstract The growing complexity of biologic modalities, including peptides, antibody fragments, bispecific antibodies, conjugated proteins, and other multifunctional biologics, has increased the technical demands placed on discovery and translational research teams. While advances in molecular design continue to accelerate, downstream challenges related to antibody engineering, conjugate design and construction, and assay readiness often limit development efficiency and experimental flexibility. This poster presents an integrated Biodesign enablement framework that combines antibody engineering capabilities with modular chemical linkers and bioconjugation strategies to support biologic development from early research through functional application. The approach leverages expertise in linker technologies, including click-based and PEG-derived architectures, recombinant antibody engineering and expression, and custom conjugation workflows to drive the development of application-ready reagents in a flexible and scalable manner. The modular framework enables compatibility across formats that helps researchers rapidly adapt conjugation strategies, optimize labeling approaches, and streamline assay development without extensive re-engineering of core biologic constructs. Applications include antibody functionalization, translational biomarker development, assay optimization, and platform validation. This integrated approach reduces technical friction, accelerates iteration cycles, and supports efficient translation of biologic concepts into functional experimental tools, enabling researchers to more effectively advance complex biologic programs.

Recombinant Antibodies

Vector provides a broad range of recombinant antibody formats, including Fab, F(ab)₂, scFv, VHH, bispecifics, and engineered Fc variants. These formats are optimized for flexibility, stability, and compatibility with downstream conjugation and assay development. Custom antibody engineering and expression services support rapid translation from concept to functional reagent.



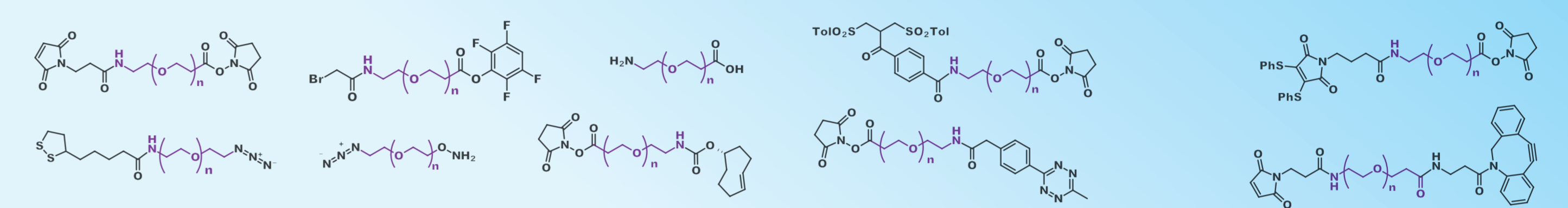
Vector integrates modular chemistry, antibody engineering, and bioconjugation technologies to enable the rational design of complex biologic constructs. This synergistic platform supports applications ranging from targeted therapeutics and imaging agents to multiplexed assays and spatial biology workflows. By unifying chemistry and biology, Vector enables scalable, application-ready solutions across discovery, translation, and development.



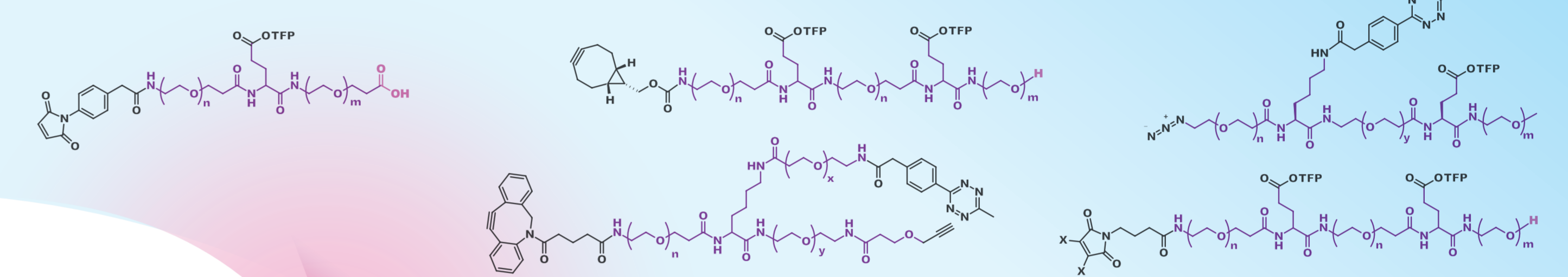
Hydrophilic Crosslinkers

Vector's hydrophilic crosslinkers enable efficient, controllable conjugation while minimizing aggregation and preserving biological activity. The portfolio includes classical, cleavable, multifunctional, and enzymatic ligation chemistries optimized for antibody, protein, and small-molecule conjugation. These reagents support precise molecular assembly across research, diagnostic, and therapeutic workflows.

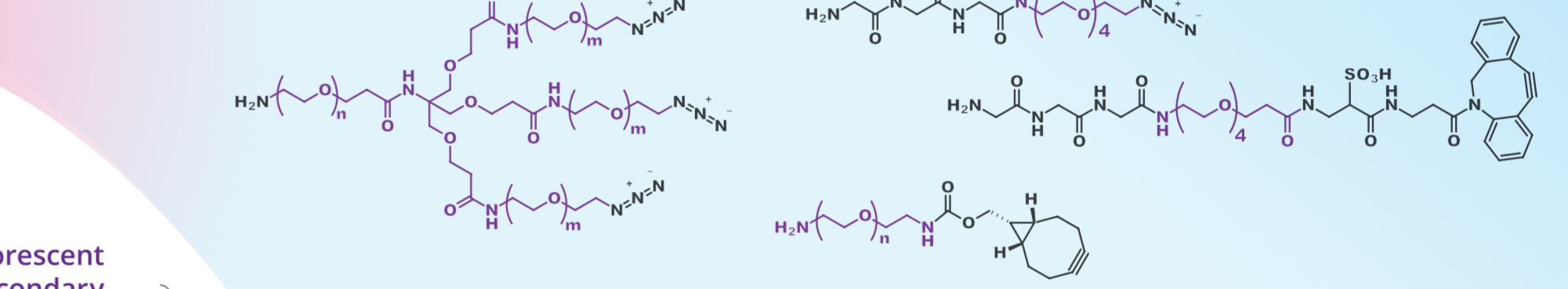
Classical and Clickable



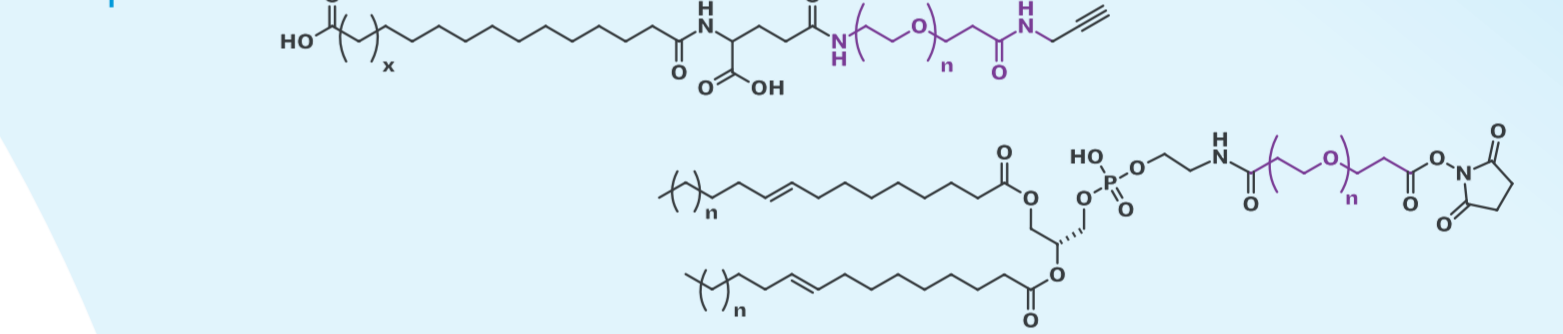
SideWinder and Trifunctional



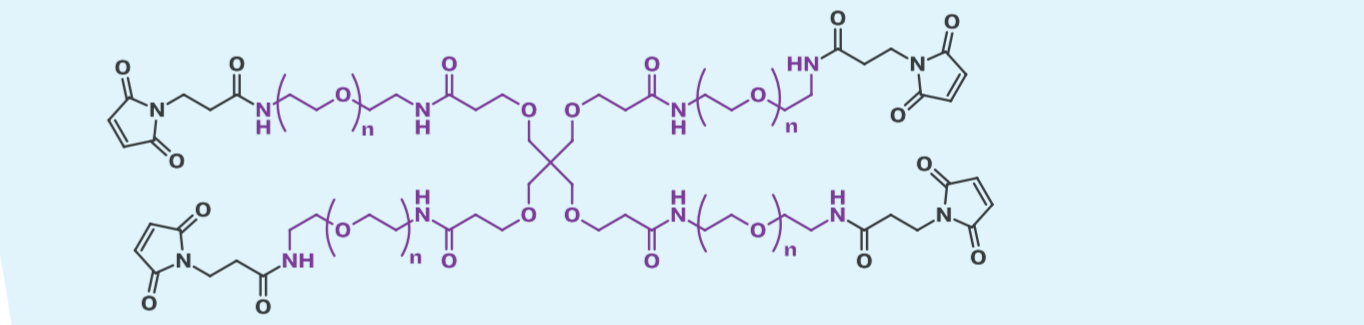
Enzymatic Ligation



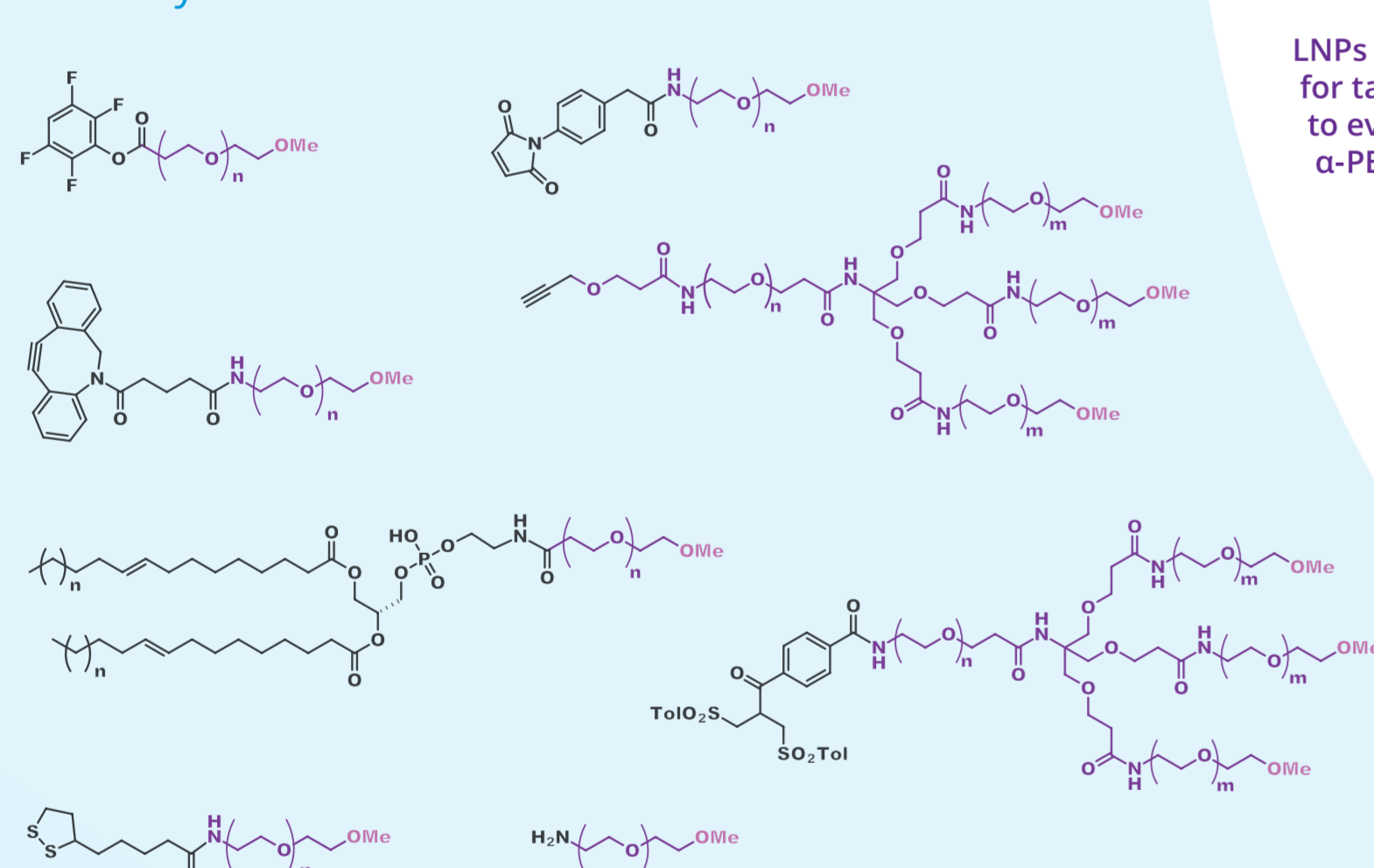
Lipids



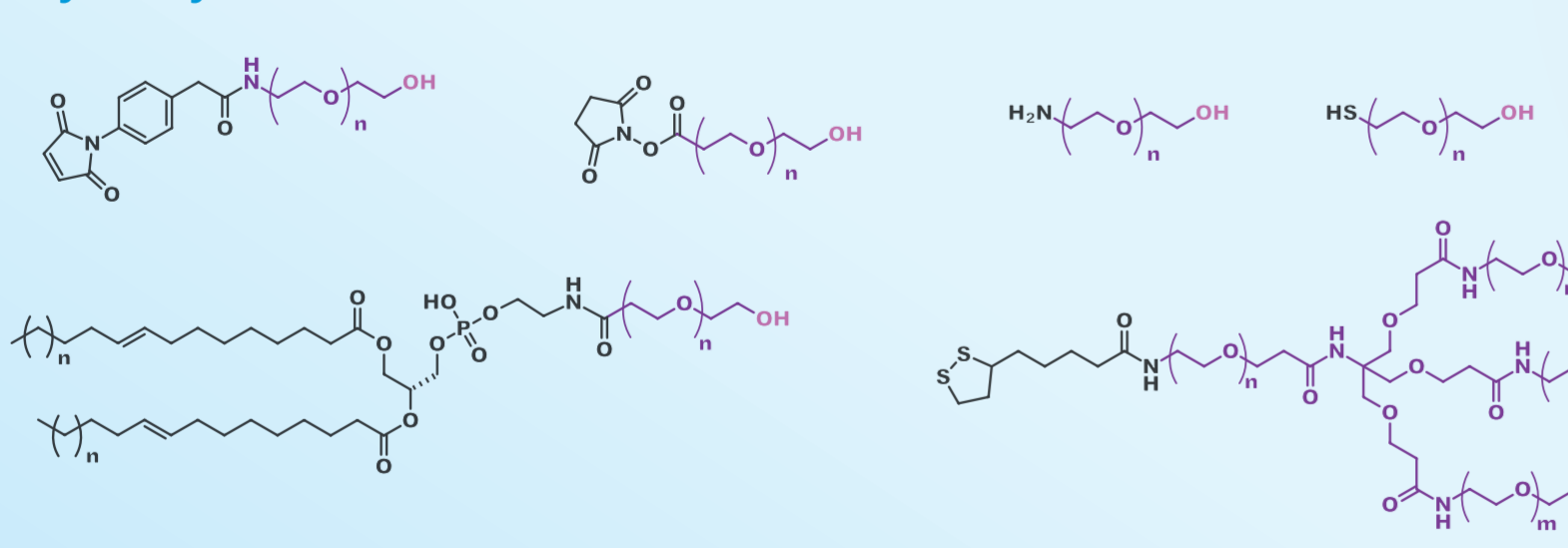
Multi-Arm



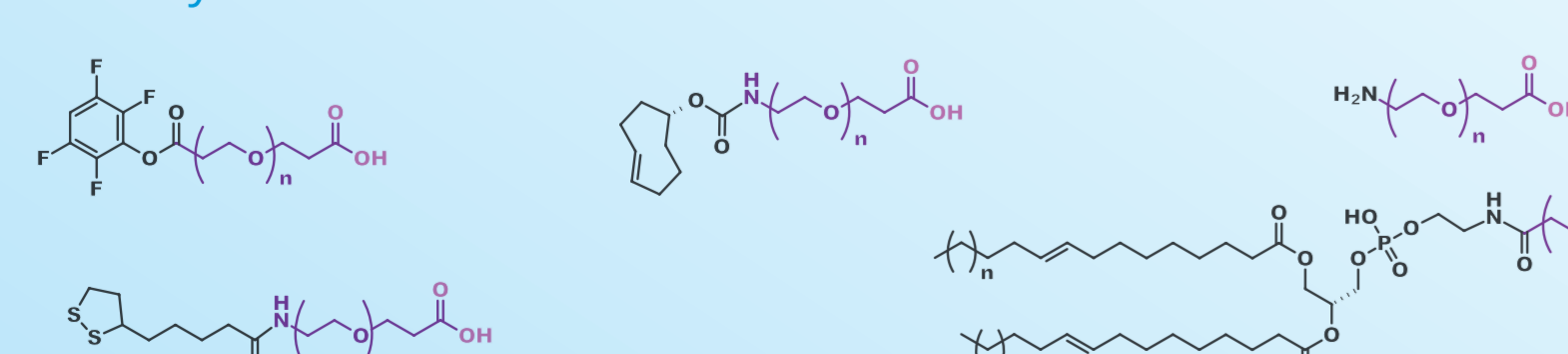
Methoxy-Terminated



Hydroxyl-Terminated



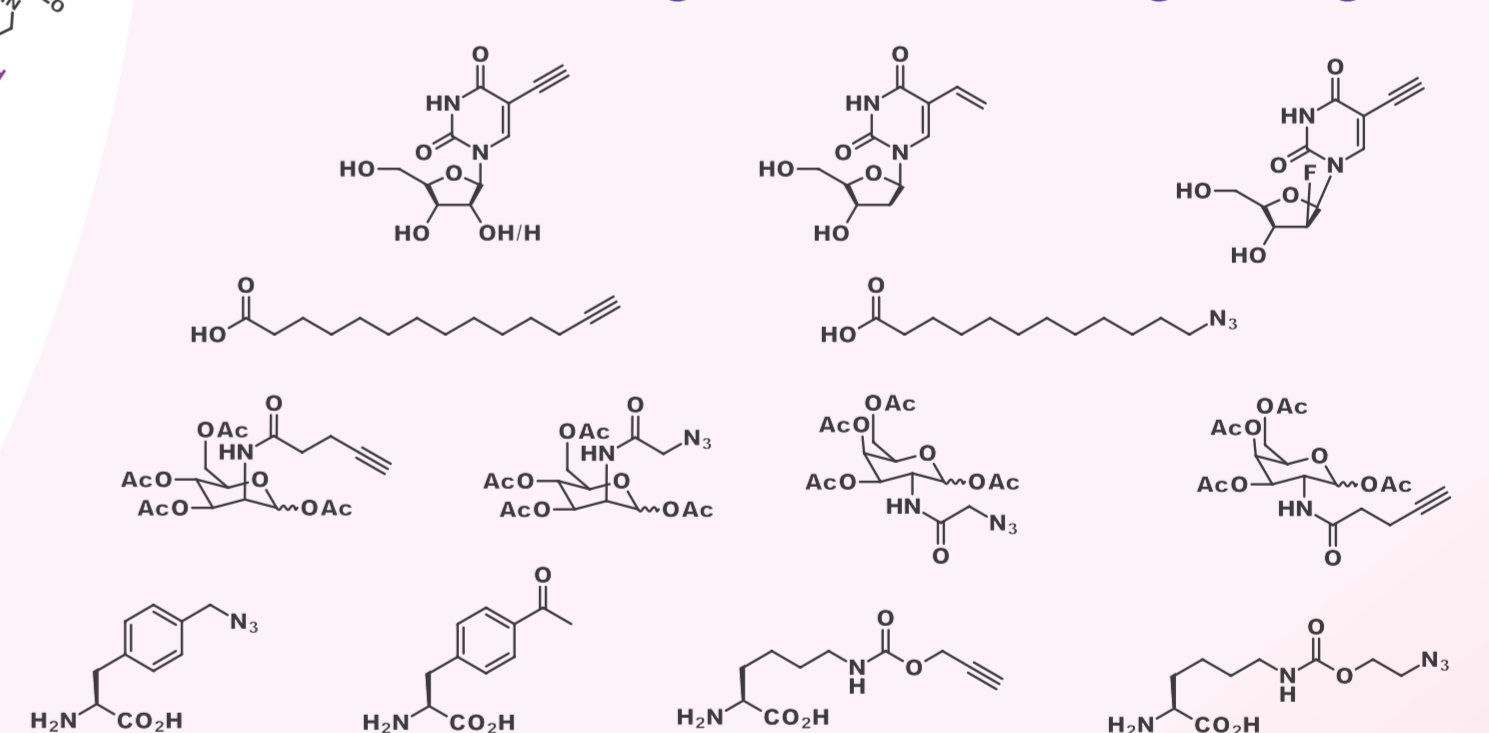
Carboxyl-Terminated



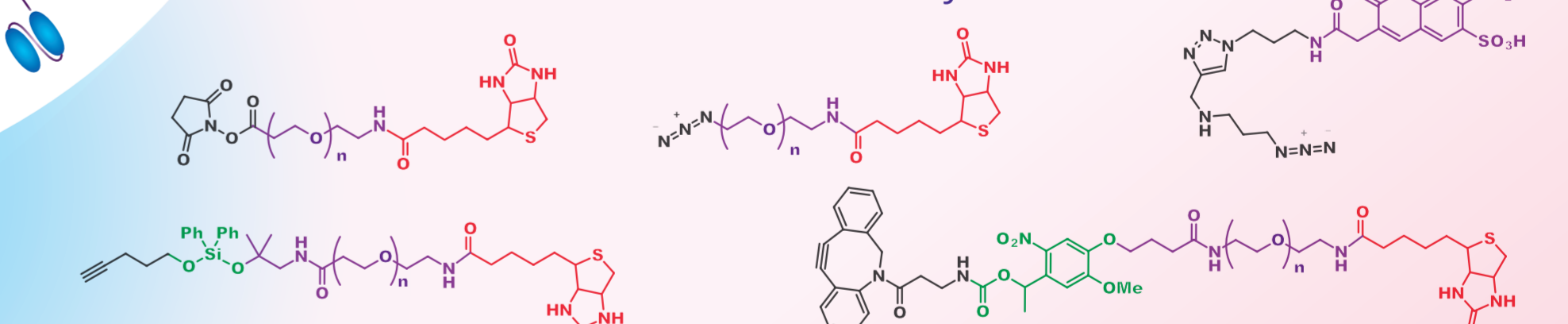
Vector's discrete PEG (dPEG®) reagents provide defined molecular spacing and enhanced solubility through precisely controlled ethylene oxide units. Available in linear and branched formats with multiple terminal functionalities, dPEG reagents enable fine-tuning of pharmacokinetics, steric accessibility, and conjugate stability. This modular platform supports reproducible bioconjugation and scalable development of complex biologics.

dPEGylation Reagents

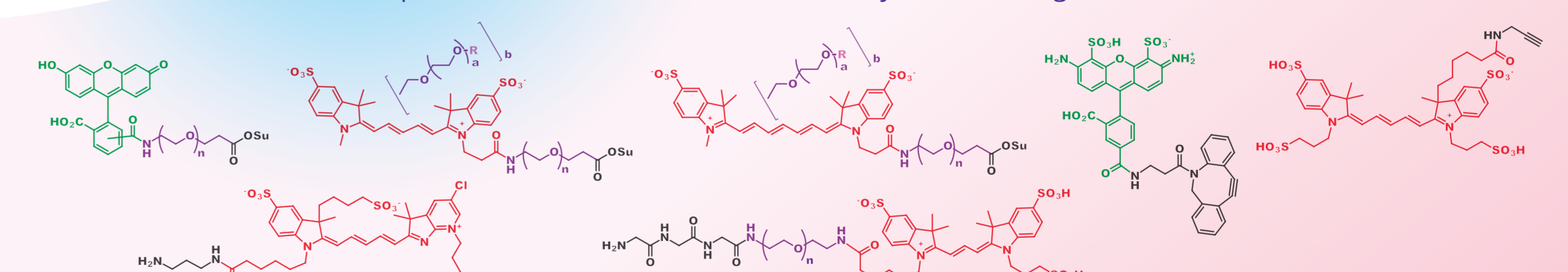
Metabolic Labeling and Cell Surface Engineering



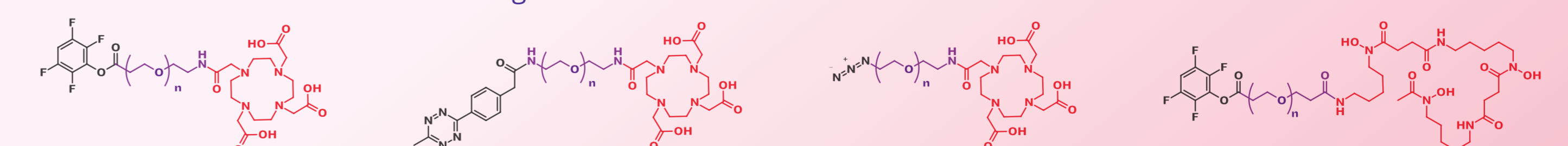
Classical/Clickable/Cleavable Biotinylation



Fluorophores for Classical, Clickable, and Enzymatic labeling



Bifunctional Chelators for Radiolabeling



Vector offers a comprehensive portfolio of labeling reagents for classical, click-based, and enzymatic conjugation strategies. These include fluorophores, biotinylation reagents, cleavable tags, and radiolabeling chelators designed for compatibility with proteins, antibodies, and biomolecules. Together, these tools enable sensitive detection, multiplexing, and functional interrogation across biological systems.

Labeling Reagents

Summary Together, these integrated chemistry, antibody engineering, and bioconjugation capabilities enable a unified approach to biologic design and functionalization. By combining precise molecular control with flexible reagent and protein engineering strategies, Vector supports the development of complex biologics across discovery, translational research, and applied workflows.