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Nota di contenuto	Click Chemistry for Biotechnologyand Materials Science; Contents; Preface; List of Contributors; Acknowledgments; 1 Click Chemistry: A Universal Ligation Strategy for Biotechnology and Materials Science; 1.1 Introduction; 1.2 Selected Examples of Click Reactions in Materials Science and Biotechnology; 1.3 Potential Limitations of Click Chemistry; 1.4 Conclusions; References; 2 Common Synthons for Click Chemistry in Biotechnology; 2.1 Introduction - Click Chemistry; 2.2 Peptides and Derivatives; 2.3 Peptoids; 2.4 Peptidic Dendrimers; 2.5 Oligonucleotides; 2.6 Carbohydrates; 2.7 Conclusion References3 Copper-free Click Chemistry; 3.1 Introduction; 3.2 Bio-orthogonal Ligations; 3.2.1 Condensations of Ketones and Aldehydes with Heteroatom-bound Amines; 3.2.2 Staudinger Ligation of Phosphines and Azides; 3.2.3 Copper-free Azide-Alkyne Cycloadditions; 3.2.4 Bioorthogonal Ligations of Alkenes; 3.3

Applications of Copper-free Click Chemistries; 3.3.1 Activity-based Profiling of Enzymes; 3.3.2 Site-specific Labeling of Proteins; 3.3.3 Metabolic Labeling of Glycans; 3.3.4 Metabolic Targeting of Other Biomolecules with Chemical Reporters; 3.4 Summary and Outlook; References
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7.2.3 Click on Macrocycles7.3 Click Reactions on DNA; 7.4 Click Reactions on Supramolecular Polymers; 7.5 Click Reactions on Membranes; 7.6 Click Reactions on Dendrimers; 7.7 Click Reactions on Gels and Networks; 7.8 Click Reactions on Self-assembled Monolayers; References; 8 Dendrimer Synthesis and Functionalization by Click Chemistry for Biomedical Applications; 8.1 Introduction; 8.2 Dendrimer Synthesis; 8.2.1 Divergent Synthesis; 8.2.2 Convergent Synthesis; 8.3 Dendrimer Functionalization; 8.4 Conclusions and Future Directions; References
9 Reversible Diels-Alder Cycloaddition for the Design of Multifunctional Network Polymers

Sommario/riassunto

Mimicking natural biochemical processes, click chemistry is a modular approach to organic synthesis, joining together small chemical units quickly, efficiently and predictably. In contrast to complex traditional synthesis, click reactions offer high selectivity and yields, near-perfect reliability and exceptional tolerance towards a wide range of functional groups and reaction conditions. These 'spring loaded' reactions are achieved by using a high thermodynamic driving force, and are attracting tremendous attention throughout the chemical community. Originally introduced with the focus on dru

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