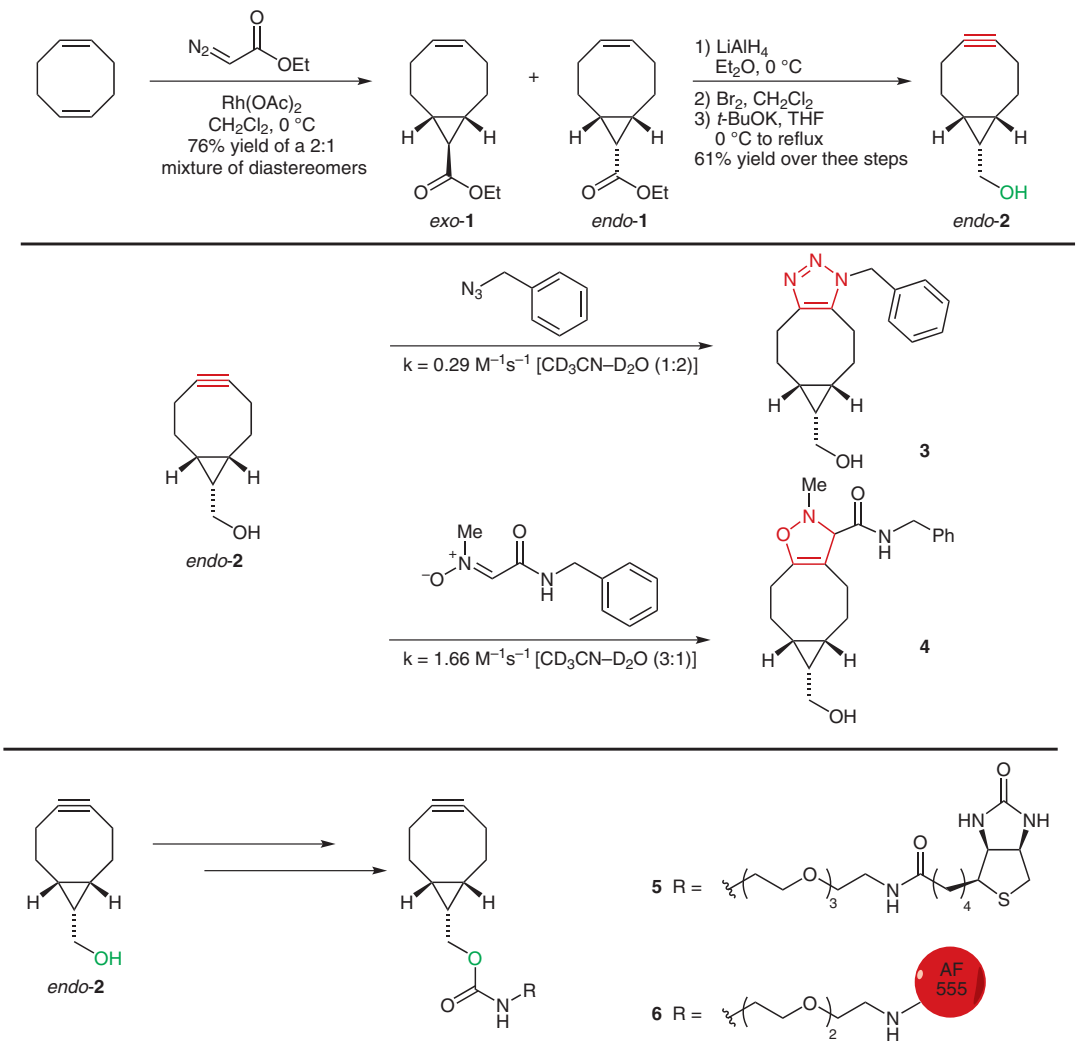
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Readily Accessible Bicyclononynes for Bioorthogonal Labeling and Three-Dimensional Imaging of Living Cells
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Bicyclononynes: New Ring-Strained Alkynes for Bioorthogonal Labeling



Significance: New bicyclo[6.1.0]nonyne (BCN) ring-strained alkynes (e.g. *endo*-**2**) are readily accessible, stable, and exhibit excellent kinetics in metal-free alkyne–azide and alkyne–nitrone cycloadditions (**3**, **4**). The C_S symmetry of BCN simplifies NMR analysis and produces a single regioisomer upon cycloaddition.

Comment: The alcohol handle allows for easy functionalization and was used to prepare biotin and dye conjugates (**5**, **6**). The BCN–biotin conjugate **5** was used to label surface glycans of human melanoma cells, and fine subcellular details were observed due to the exceptionally high signal-to-noise ratio (SNR = 221).

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