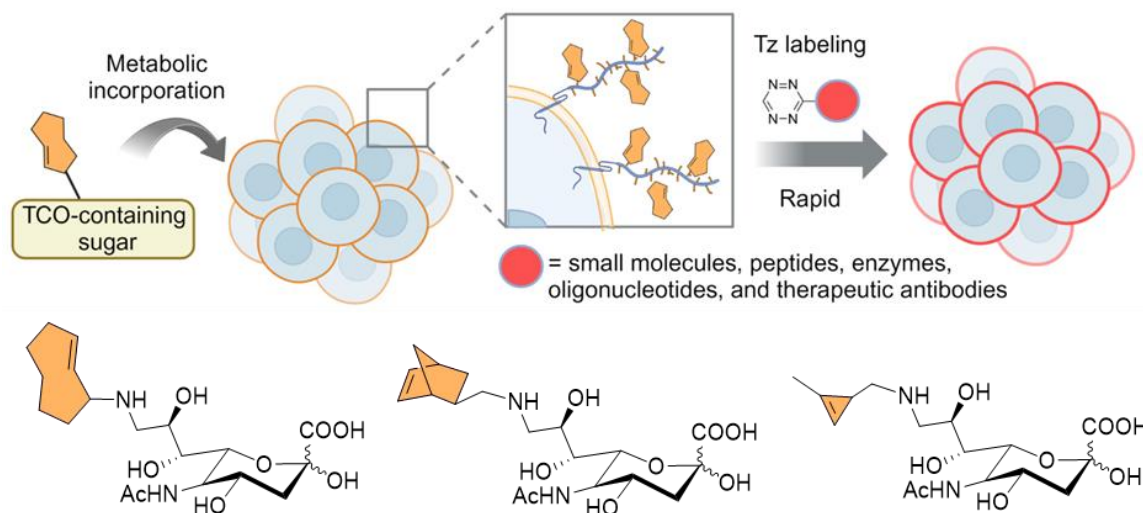


SYNTHESIS AND INCORPORATION OF MODIFIED SIALIC ACIDS FOR CELL LABELLING

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Sialic acid is uniquely suited for cell labeling, as it is typically the terminal unit of cell surface polysaccharides. When modified with a reactive dienophile moiety, it undergoes a rapid bioorthogonal inverse-electron-demand Diels–Alder (IEDDA) reaction with tetrazines. We utilize chemical synthesis in tandem with metabolic glycoengineering (MGE) to incorporate modified sialic acids into cell structures. The engineered cells are then labeled with tetrazine-containing molecules. This method is effective for conjugating both small and large molecules. Compared to established protocols, it demonstrates superior efficiency in ligating large active molecules, such as antibodies, at lower concentrations.



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