

Resource Summary Report

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Derivitization of polyphosphate with cystamine to facilitate secondary labeling with biotin

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Proper Citation

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Protocol Information

URL: <https://dx.doi.org/10.17504/protocols.io.7z3hp8n>

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Summary: Investigation of the biological roles of inorganic polyphosphate has been facilitated by our previous development of a carbodiimide-based method for covalently coupling primary amine-containing molecules to the terminal phosphates of polyphosphate (Choi et al., Biochemistry 49:9935, 2010). We now extend that approach by using readily available “bridging molecules” containing a primary amine and an additional reactive moiety, including another primary amine, a thiol or a click chemistry reagent such as dibenzocyclooctyne. This two-step labeling method is used to covalently attach commercially available derivatives of biotin, peptide epitope tags, and fluorescent dyes to the ends of polyphosphate. This protocol specifically describes the labeling of heterogenous long-chain polyP with cystamine and the subsequent addition of maleimide-biotin.

Associated Publications: Baker CJ, Smith SA, Morrissey JH (2020) Diversification of polyphosphate end-labeling via bridging molecules. PLoS ONE 15(8): e0237849. doi: [10.1371/journal.pone.0237849](https://doi.org/10.1371/journal.pone.0237849)

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