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(54) **Title:** COMPLEMENTATION-BASED TAGS AND REPORTERS FOR DUAL-MODALITY LABELING

(57) **Abstract:** Provided herein are compositions and systems comprising complementation-based tags and reporters for labeling and detection of targets by luminescence and a second modality (e.g., fluorescence), and methods of use thereof. In particular, tags are provided comprising the fusion of a first component of bioluminescent complex and a first component of modified dehalogenase complex, reporters are provided comprising the second component of bioluminescent complex and the second component of modified dehalogenase complex, and systems and methods are provided comprising the tags and reporters herein for dual-modality labeling and detection of targets.

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