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(54) Title: METHODS FOR QUANTIFYING LIVE BACTERIA

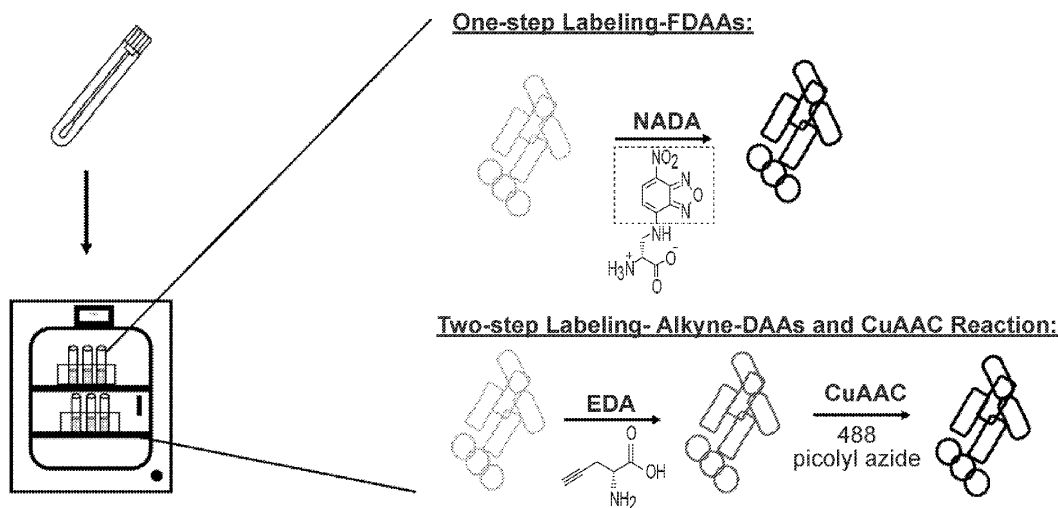


FIG. 1

(57) **Abstract:** The present disclosure provides methods, systems, and devices for the *in situ* labeling of complex environmental samples, specifically mixed populations of total live bacteria, using D-amino acid analogs, such as fluorescent D-amino acids or D-amino acids with a biorthogonal tag to enable chemical conjugation of a fluorophore (e.g. by click chemistry). The disclosure further provides methods for quantifying the TVB by cell manipulation using ferrofluid within a microfluidic device.

[Continued on next page]

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GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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