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Supplementary information

CLIP and complementary methods

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Supplemental Table 1: Characteristics of commonly-used proximity enzymes

Enzyme	Source (size)	Labeling range (nm)	Substrate for proximity labeling (incubation time)
Peroxidase based (fixed cells)			
Horseradish peroxidase (HRP)[1]	Horseradish (44KDa)	200–300	Biotin phenol, H_2O_2 (5-10 mins)
Split horseradish peroxidase (sHRP)[2]	Horseradish (44KDa)	200–300	Biotin phenol, H_2O_2 (45 mins)
APEX[3,4]	Pea, semi-synthetic (28kDa)	10–20	Biotin-phenol (30–60 mins)
APEX2[5]	Soybean, semi-synthetic (28kDa)	10–20	Biotin-phenol, biotin-aniline, biotin-napthylamine (30–60 min)
Split APEX2[6]	Soybean, semi-synthetic (28kDa)	10–20	Biotin-phenol, biotin-aniline, biotin-napthylamine (30–60 min)
Biotin ligase (live cells)			
BioID[7]	*E.coli* (37KDa)	10–15	Biotin (50 μM) (6-24 hrs)
Split BioID[8,9]	*E.coli*	10–15	Biotin (50 μM) (6-24 hrs)
BioID2[10]	*Aquifex.aeolicus* (27kDa)	10–15	Biotin (3.2 μM) (6-24 hrs)
TurboID[11]	*E.coli* (35kDa)	10–15	Biotin (1-30 min)
MiniTurboID[11]	*E.coli* (28kDa)	10–15	Biotin (10-60 min)

Split TurboID[12]	*E.coli*	10–15	Biotin (1-18 hrs),1 hr optimum
BASU[13]	*B.subtilis* (28kDa)	10–15	Biotin (200 µM) (30 mins - 18hrs)
AirID[14]	Synthetic	--	Biotin (5 µM) (3hrs)

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