

Supplementary Table S1 Carbon source concentration of ethanol-disulfiram screening medium

Ethanol concentration (g·L ⁻¹)	Colony number of basic	YNB colony number of
	carbon source medium	culture medium
5	217	112
10	289	74
20	105	6
40	1	0

Supplementary Table S2 Screening medium inhibition concentration

Disulfiram concentration ($\text{g}\cdot\text{L}^{-1}$)	Colony number
0	289
0.1	188
0.3	87
0.5	0
1.0	0
2.0	0

Supplementary Table S3 Results of the preliminary screening of mutant strains with lower aldehyde

production						
Starting	Mutation	Screening	plate	and	Number of primary	Sum total
strain	method	domestication	medium		strains screened	
Lager497	⁶⁰ Coγ	High	concentration		104	107
		acetaldehyde				
		Ethanol-disulfiram			3	

Supplementary Table S4 Metabolic capacity of mutant strains to acetaldehyde

Acetaldehyde standard solution		
concentration (mg·L ⁻¹)	12 h margin percentage (%)	24 h margin percentage (%)
20	68.30	44.77
40	69.75	51.43
60	68.02	56.44
80	68.30	53.02
100	80.80	58.51
120	71.70	49.57
140	69.33	49.67
160	68.96	48.66
180	68.03	49.32
200	68.64	50.02