

Supplemental Table 1. Previous grid experiments. Here we provide an outline of previous extractions, variations in protocols, and extraction quantity and quality measurements that led to the development of our optimized method.

CHOP ID	Pellet weight	Lysis buffer ⁺	Bead-beating [*]	Bead quantity	SDS	Phenol [†]	Precipitation Temp/ Reagent [‡]	Precipitation salt [§]	Total DNA	260/280	260/230	Gel visual peak (kb)
101011	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.092	0.86	0.28	Faint/no peak
101031	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.051	1.11	0.36	Faint/no peak
101101	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.059	1.62	1.06	Faint/no peak
101111	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.145	1.54	0.58	Faint/no peak
101151	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.205	1.69	1.47	Faint/no peak
101161	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.206	1.53	0.67	Faint/no peak
101171	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.261	1.81	1.46	Faint/no peak
101201	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.198	1.52	0.65	Faint/no peak
101211	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.130	1.62	0.56	Faint/no peak
101241	n/a	TLB	None	n/a	Late	No Phenol	Cold ETOH	NaOAc	0.074	2.18	0.95	Faint/no peak
101175a	35 mg	KSB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	2.324	1.06	n/a	>48
101175b	35 mg	KSB	None	n/a	Early	No Phenol	Cold ETOH	NaOAc	0.159	0.70	n/a	empty
101175c	35 mg	TLB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	5.908	0.83	n/a	>48
101175d	35 mg	TLB	None	n/a	Early	No Phenol	Cold ETOH	NaOAc	0.410	0.67	n/a	empty
101032a	30 mg	KSB	None	n/a	Early	No Phenol	Cold ETOH	NaOAc	0.267	0.80	n/a	empty
101032b	30 mg	TLB	None	n/a	Early	No Phenol	Cold ETOH	NaOAc	0.178	0.70	n/a	empty
101115a	55 mg	TLB	Early	100 mg	Early	No Phenol	Cold ETOH	NaOAc	2.240	0.89	0.5	>48
101115b	55 mg	TLB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	7.210	2.33	-5.61	>48
101155a	70 mg	TLB	Early	100 mg	Early	No Phenol	Cold ETOH	NaOAc	3.409	1.32	-10.38	>48
101155b	70 mg	TLB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	9.660	1.02	0.61	>48
101204a	70 mg	TLB	Early	100 mg	Early	No Phenol	Cold ETOH	NaOAc	4.459	2.26	-0.66	>48
101204b	70 mg	TLB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	10.360	1.81	7.69	>48
101245a	60 mg	TLB	Early	100 mg	Early	No Phenol	Cold ETOH	NaOAc	2.219	0.73	0.38	>48
101245b	60 mg	TLB	Early	150 mg	Early	No Phenol	Cold ETOH	NaOAc	7.210	0.78	0.35	>48
101033a	60 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	5.115	1.78	2.79	>48
101033b	154mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	5.115	1.74	3.06	>48
101034a	100 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.433	1.86	2.42	>48
101034b	49 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.620	1.87	2.58	>48
101115	93 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.587	1.90	2.56	>48
101174a	31 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.136	1.79	3.23	>48
101174b	77 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.048	1.84	2.67	>48
101931	76 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	4.114	1.87	2.70	>48
101932	103 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	3.124	1.93	2.56	>48
101941	122 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	3.278	1.76	3.11	>48
1011432	105 mg	TLB	Early	150 mg	Early	Phenol	RT/2-Prop	NaCl	3.168	1.77	2.07	>48

⁺ Total Lysis Buffer (TLB), developed by Josh Quick and available on protocols.io, is described in our full protocol (Supplemental Material 1) (36). KSB refers to a “Käser specific buffer”, which is described in Käser et al. (32).

^{*} “Early” bead-beating refers to the timing prior to enzymatic digestion; “Late” bead-beating refers to timing after enzymatic digestion. All Early bead-beating was done in high SDS concentration.

† DNA extractions in “no phenol” were extracted as described in Methods with chloroform:isoamyl alcohol (24:1, Tris-saturated). Extractions in “phenol” were extracted using phenol:chloroform:isoamyl alcohol (25:24:1, Tris-saturated, pH 8.0)

‡ Precipitation reagent was either RT 2-Prop (room temperature isopropanol) or Cold ETOH (ethanol).

¶ Precipitation salt was either 3 M sodium acetate (pH 5.2) or 5 M NaCl.