

Supplemental Table 1: Glu-D1 gene positions in Aet v4 assembly

	Chr	Start position	End position	Length
Glu-D1x	1D	419306988	419309556	2568 bp
Glu-D1y	1D	419364015	419365995	1980 bp

Supplemental Table 2: *Glu-D1x* molecular haplotypes in *Aegilops tauschii*. The combination of x and y coding sequence haplotypes resulted in a cumulative total of forty-five haplotypes detected among 242 *Ae. tauschii* accessions and 33 unique x subunit haplotypes. Haplotypes are listed by major clade, followed by alphanumerical haplotype for the x subunit within the clade. The number of accessions possessing each haplotype is indicated along with the associated SDS-PAGE mobilities.

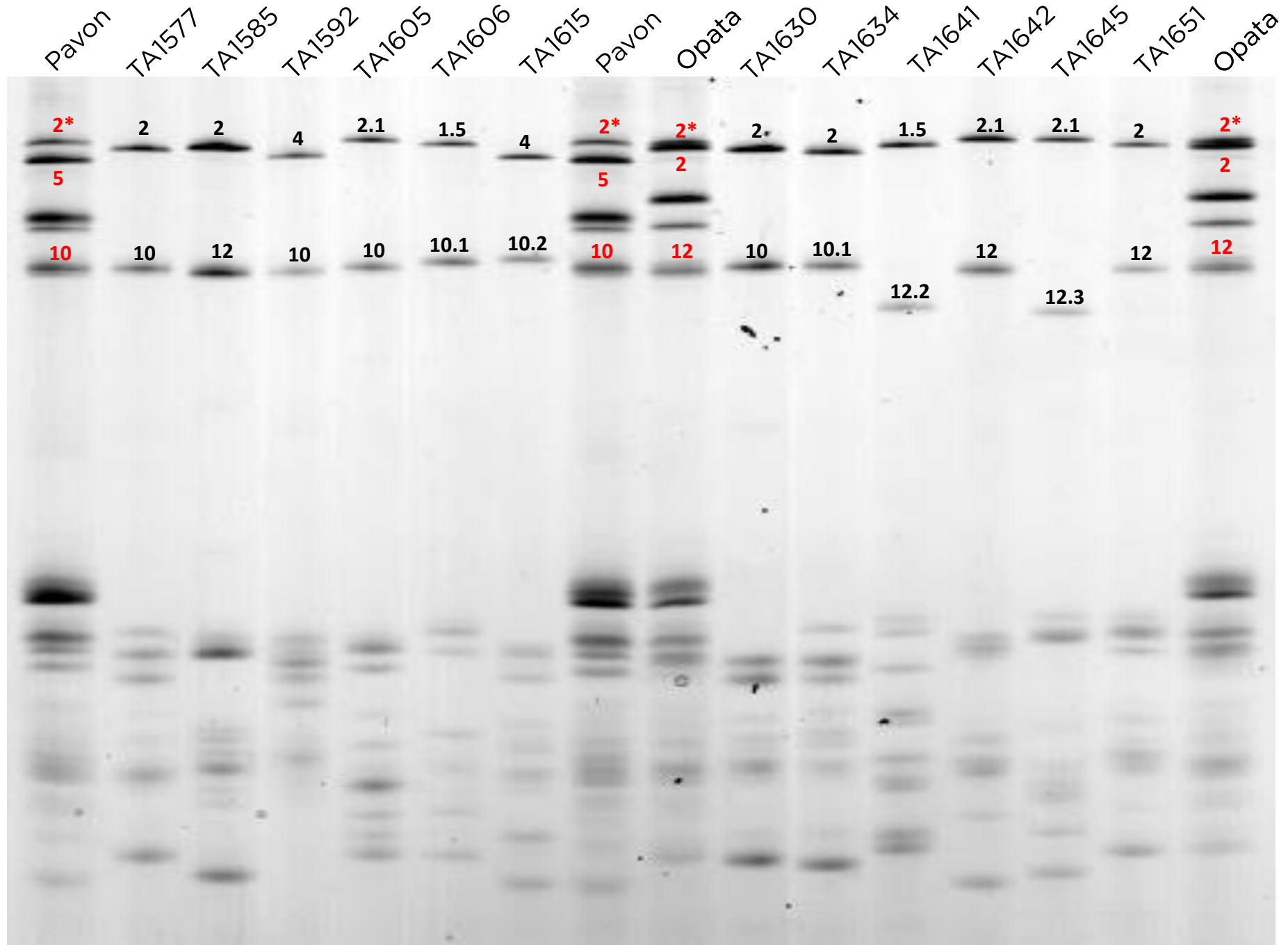
Major Clade	Lineages	Number of accessions	Haplotype	SDS-PAGE
III	L2	21	x1a	2x
III	L2	2	x1b	2.1x
III	L2	8	x1c	2x, 1.5x
III	L2	1	x2a	2.1x
III	L2	14	x3a	null, 2x, 2.1x
III	L2	2	x3b	
III	L2	11	x4a	2.1x
III	L2	1	x4b	1.5x
III	L2	3	x5a	4x
III	L2	1	x5b	2x
III	L2	19	x6a	4x
III	L2	8	x6b	4x
III	L2	2	x6c	4x
III	L3	7	x7a	
I	L1	9	x8a	2x
I	L1	6	x8b	2x
I	L1	7	x8c	2x
I	L1	1	x8d	
I	L1	2	x8e	2x
I	L1, L2	36	x9a	2x
I	L1	1	x10a	
I	L1	1	x10b	
I	L1	39	x10c	3x
I	L1	5	x11a	2x, 3x
I	L1	20	x12a	3x
I	L1	3	x13a	1tx
I	L1	2	x13b	2x, 4x
I	L1	4	x13c	2.1*x
II	L2	29	x14a	1.5x, 2x
II	L2	3	x14b	2x, 3x
II	L2	1	x14c	
II	L2	3	x15a	2.1x
II	L3	1	x16a	

Supplemental Table 3: *Glu-D1y* molecular haplotypes in *Aegilops tauschii*. The combination of x and y coding sequence haplotypes resulted in a cumulative total of forty-five haplotypes detected among 242 *Ae. tauschii* accessions and 32 unique y subunit haplotypes. Haplotypes are designated as subclade number, followed by alphabetical haplotype for the y subunit within the subclade. The number of accessions possessing each haplotype is given in 'n accession' column followed by the associated SDS-PAGE mobilities.

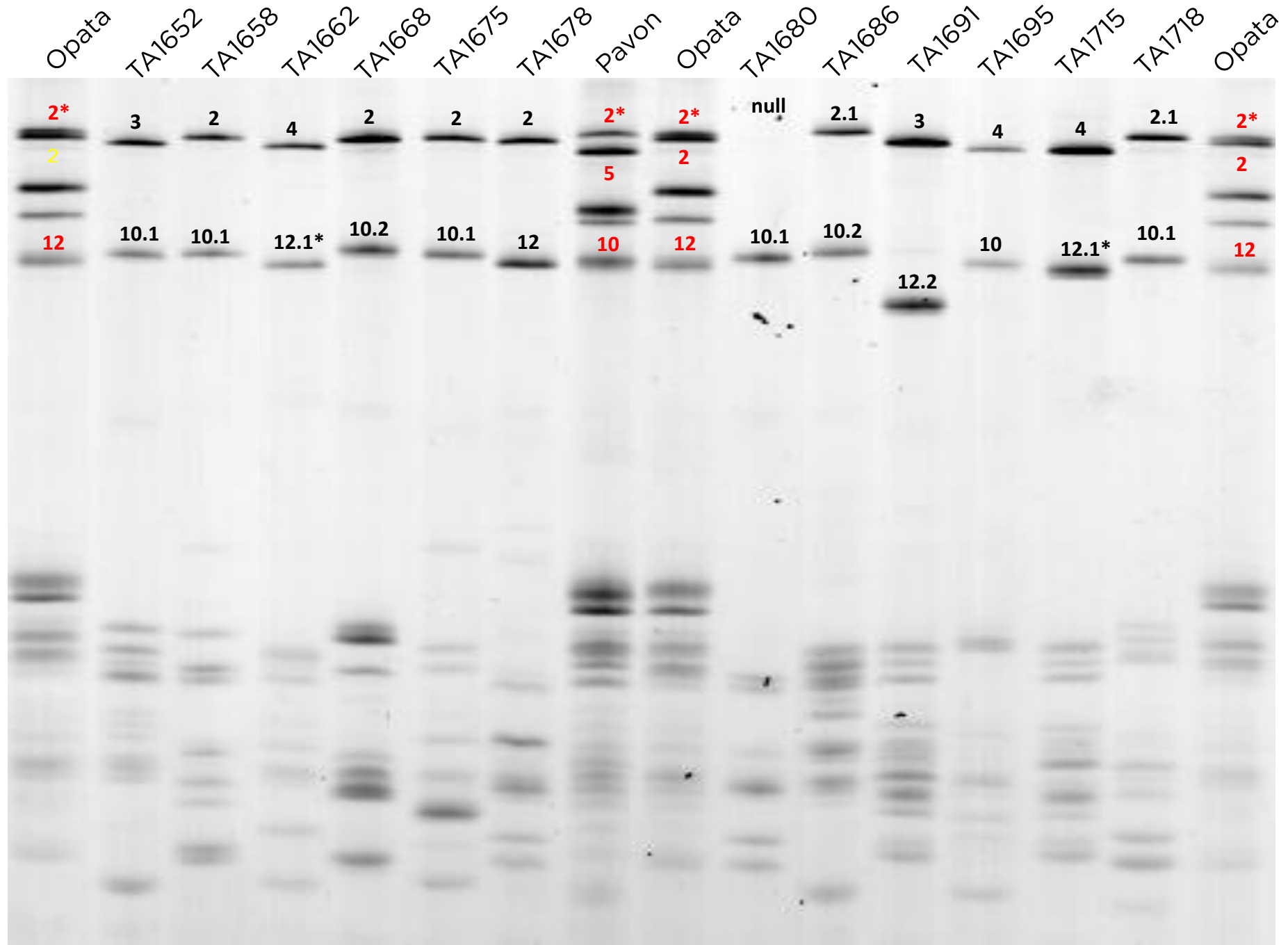
Major Clade	Lineages	Number of accessions	Haplotype	SDS-PAGE
III	L2	16	y1a	12y
III	L2	1	y1b	
III	L2	3	y1c	
III	L2	1	y1e	
III	L2	10	y1d	12y, 12.1*y
III	L2	1	y2a	12y
III	L2	14	y3a	10.1y, 10.2y
III	L2	2	y3b	
III	L2	4	y4?	10y
III	L2	4	y4a	10.1y
III	L2	3	y4b	10y
III	L2	1	y4c	10.1y
III	L2	4	y5a	10.2y
III	L2	21	y6a	10.2y, 12y, 12.1*y
III	L2	8	y6b	10y
III	L3	7	y7a	
I	L1	25	y8a	10y, 10.3y
I	L1	13	y9a	10y
I	L1, L2	14	y9b	11y, 12y
I	L1, L2	9	y9c	10y
I	L1	41	y10a	10y, 10.1y
I	L1	3	y11a	10y
I	L1	1	y11b	10y
I	L1	1	y11c	10.1y
I	L1	19	y12a	10.1y
I	L1	1	y12b	
I	L1	5	y13a	12y, 10y
I	L1	4	y13b	12.1*y
II	L2	30	y14a	12.2y, 12y
II	L2	3	y14b	12.2y
II	L2	3	y15a	12.3y
II	L3	1	y16a	

Supplementary Figure 1. SDS-PAGE images. Seventy two *Ae. tauschii* accessions were selected for SDS-PAGE analysis. Hexaploid wheat variety standards Pavon (*Glu-D1* 5+10) and Opata (*Glu-D1* 2+12) were used. Both varieties carry the *Glu-A1* 2* x subunit allele that has similar mobility as the x subunit in 2+12.

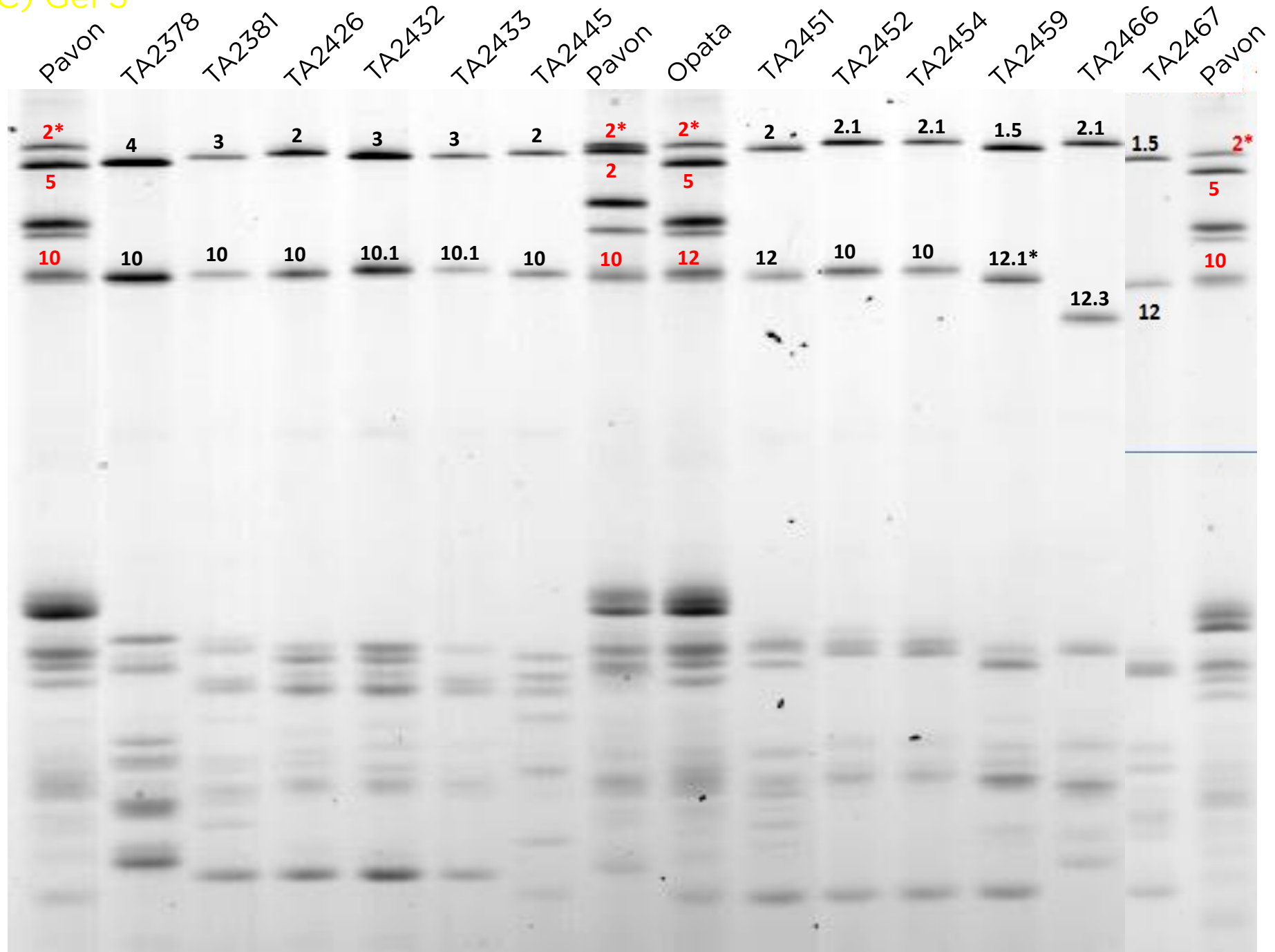
A) Gel 1



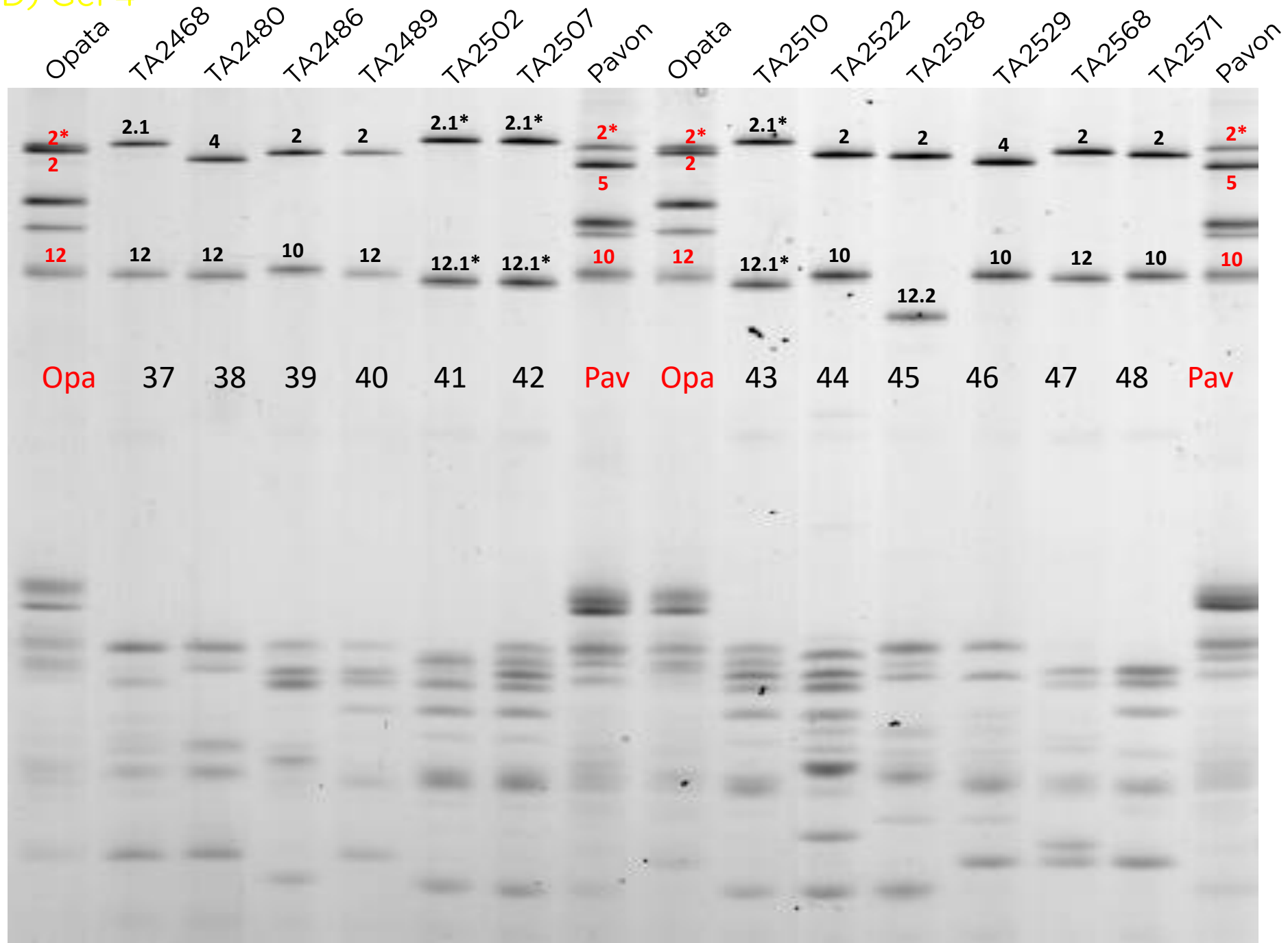
B) Gel 2



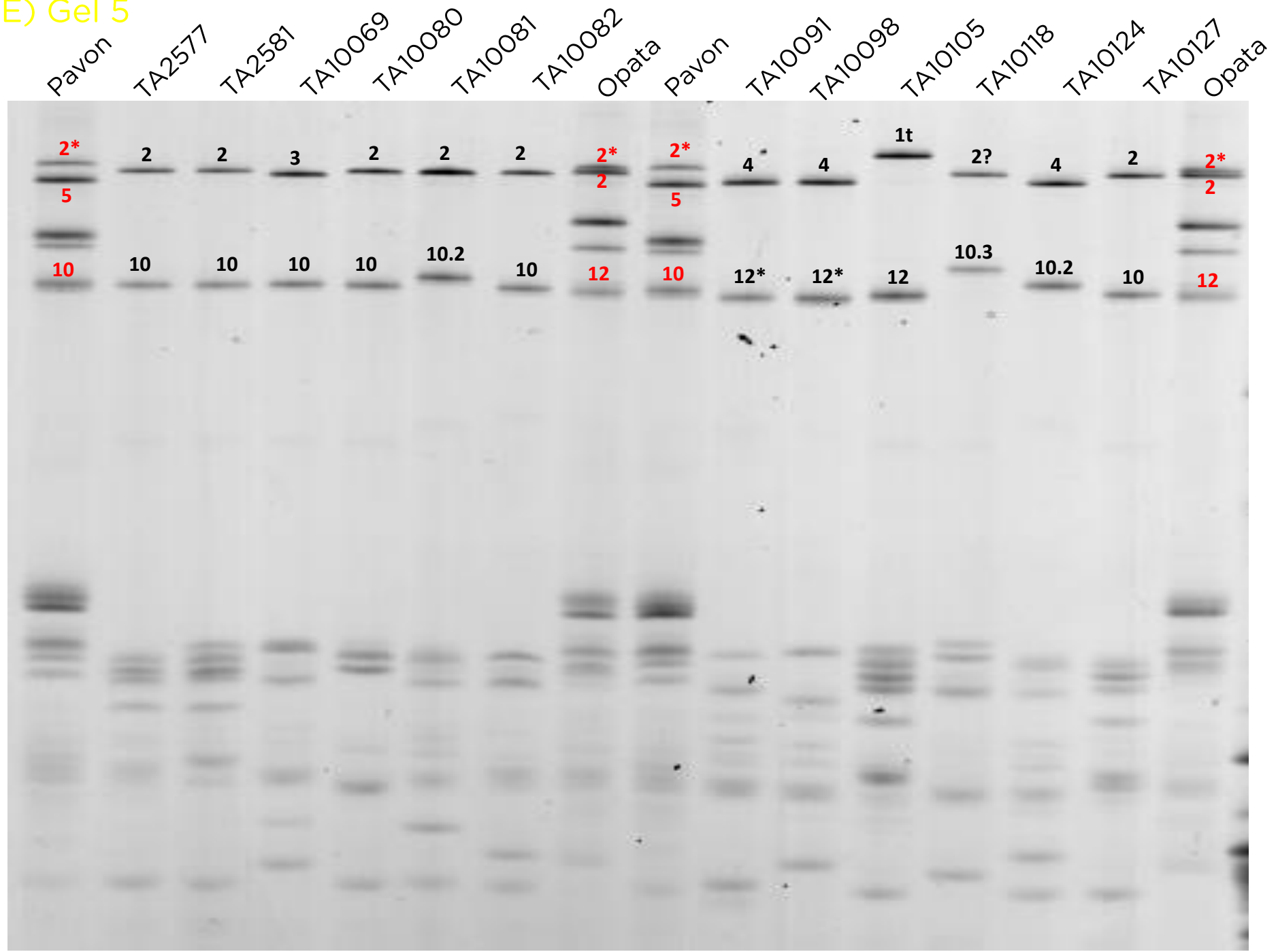
C) Gel 3



D) Gel 4



E) Gel 5



F) Gel 6

