Table S1: Bacterial strains, plasmids, and oligonucleotides used in this study.

Strain	**Genotype/Phenotype**	**Source**
DH5αMCR	F_ *mcrA* (*mrr-hsdRMS-mcrBC*) 80*dlacZM15* (*lacZYAargF*) *U169 endA1 recA1 supE44 I-thi-1 gyrAa96 relA1*	Gibco BRL
BL21 (DE3)	F^- *ompT hsdS*$_B$(r_B^- m_B^-) *gal dcm* (DE3)	Promega
BL21(DE3) *ihfA*	Deletion of *ihfA*	Laboratory strain

Plasmid	**Description**	**Reference**
pET28_intN1	*intN1*under T7 control in pET28	(5)
pJWS200	pGEM-T containing *attN1*; template for site-directed mutagenesis of arm-type sites	(10)
pLR20	Cointegrate plasmid formed following recombination between pJWS200 (*attN1*) and pJWS14 (*attBT1-1I*); contains *attL* and *attR*	L. Rajeev, unpublished results
pLR21	*orf2x* under T7 control in pET27b	L. Rajeev, unpublished results

Oligonucleotide	**Sequence (5′-3′)**	**Purpose**	**Reference**
NdeI-orf2x	CCC GAA GCA TAT GAC AGA CAT ATT GGC AAT TAT CC	Cloning of Orf2x into overexpression vector	L. Rajeev, unpublished results
orf2x-EcoRI	TCG AAT TCT TAG ATT AAA GGA TTG TGT TCA CC	Cloning of Orf2x into overexpression vector	L. Rajeev, unpublished results
LR207[1]	CCT TCT GGT AGT GCA CAT TAG AAA GAA ATA CCC TAT AAC	*attL* amplification	L. Rajeev, unpublished results
LR200[1]	ATA TTT TCC CCA CAT TTT CCC CAC	*attL* and *attN1* amplification	L. Rajeev, unpublished

	ATC TGC T		results
LR193[1]	GAC TTA CTG CTA TAT TTT TTG CAC GTG TGG GG	*attR* an *attN1* amplification	L. Rajeev, unpublished results
LR212[1]	CGT ATC TTT GCA CCG CAA TTG AGA AAT CAA GC	*attR* amplification	L. Rajeev, unpublished results
MM208[1]	CAT AGA CTT TCA GGT TGA ATT TTA CTC TGC TGC	*attL* amplification and sequencing	This study
attBT1-1 T4	TCT TAG CTT TTC GTG GTA CCC AGA C	IntN1 cleavage assays	L. Rajeev, unpublished results
attBT1-1 bottom	CAT CCC GGT TCG ACC CCG GGT CTG GGT ACC ACG AAA AG	IntN1 cleavage assays	L. Rajeev, unpublished results
DR1a mut corr[2]	GCT ATA TTT TTT GCG ACG TCG GGG AAA ATG TGG GGA AAA TTC AAG C	Site-directed mutagenesis of DR1a	This study
DR1b mut[2]	GCA CGT GTG GGG AAA GAC GTC GGA AAA TTC AAG CAA AAG AAA AAG C	Site-directed mutagenesis of DR1b	This study
DR2a mut[2]	GAA ATA ATT AGA CGT CGG AAA ATG TGG GTA AAA AGA AAA ATG CGG	Site-directed mutagenesis of DR2a	This study
DR2b mut[2]	GAA ATA ATT AAA GTG GGG AAA GAC GTC GTA AAA AGA AAA ATG CGG	Site-directed mutagenesis of DR2b	This study
DR3a mut[2]	GCA AAA TAT TTA GCA GGA CGT CGG AAA ATG TGG GGA AAA TAT TTA TAT TTG C	Sire-directed mutagenesis of DR3a	This study
DR3b mut[2]	GCA GAT GTG GGG AAA GAC GTC GGA AAA TAT TTA TAT TTG CAG	Site-directed mutagenesis of DR3b	This study

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[1] Primers were ordered with 5′ 6-carboxyfluorescein phosphoramidate (FAM) labels and paired with an unlabeled reverse primer for amplification of footprinting substrates.
[2] Only the top strand of each pair of mutagenesis primers is shown.

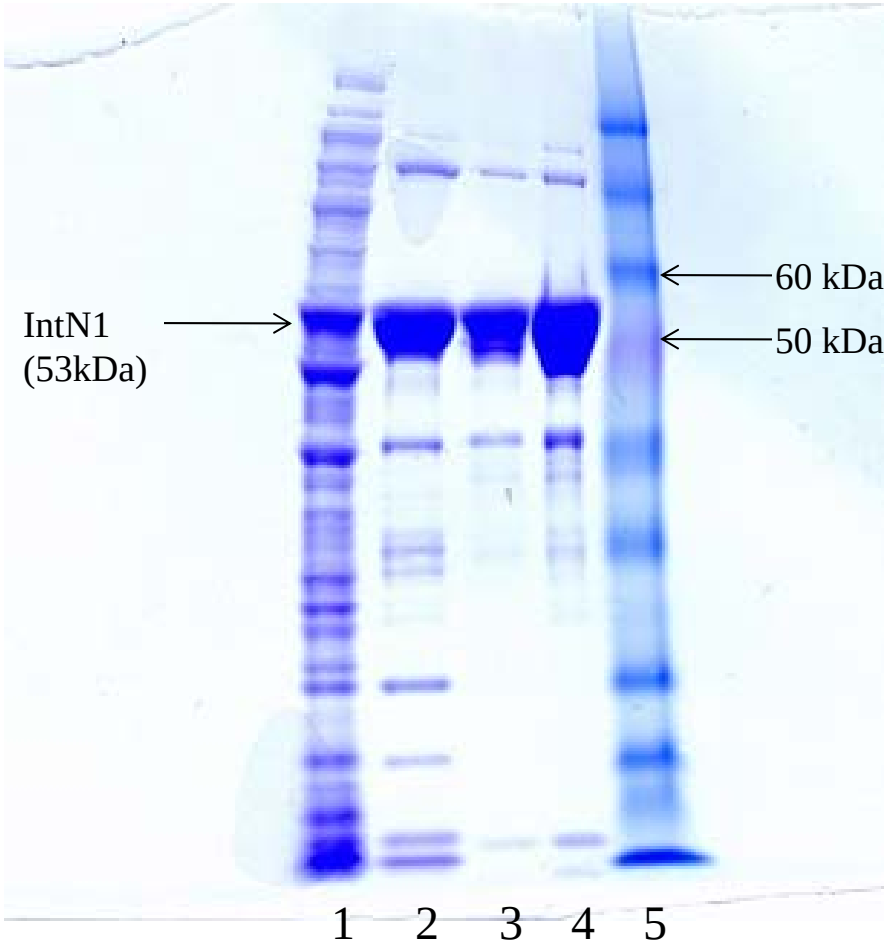

Figure S1: SDS-PAGE analysis of IntN1 protein samples following purification. IntN1 was overexpressed and purified as described in Materials and Methods. The predicted molecular weight of IntN1 is 53 kDa. Lane 1, *E. coli* crude extract containing IntN1; lane 2, IntN1 following heparin-agarose chromatography; lane 3, IntN1 following heparin agarose chromatography and gel filtration chromatography before dialysis into storage buffer; lane 4, IntN1 as described in lane 3 but following dialysis into storage buffer; lane 5, Benchmark ladder (Invitrogen).

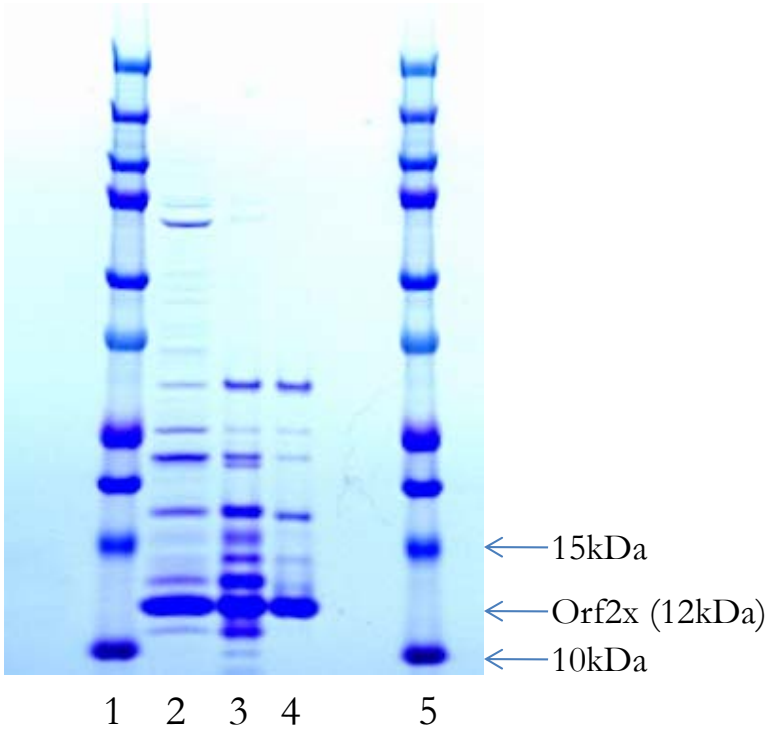

Figure S2A: SDS-PAGE analysis of Orf2x following partial purification. Orf2x was overexpressed in an *ihfA E. coli* background and partially purified as described in Materials and Methods. Lanes 1 and 5, Precision Plus Kaleidoscope Protein Standard (Bio-Rad); Lane 2, Orf2x pellet fraction; Lane 3, Orf2x following heparin-agarose chromatography, Lane 4, Orf2x following heparin and SP cation exchange chromatography.

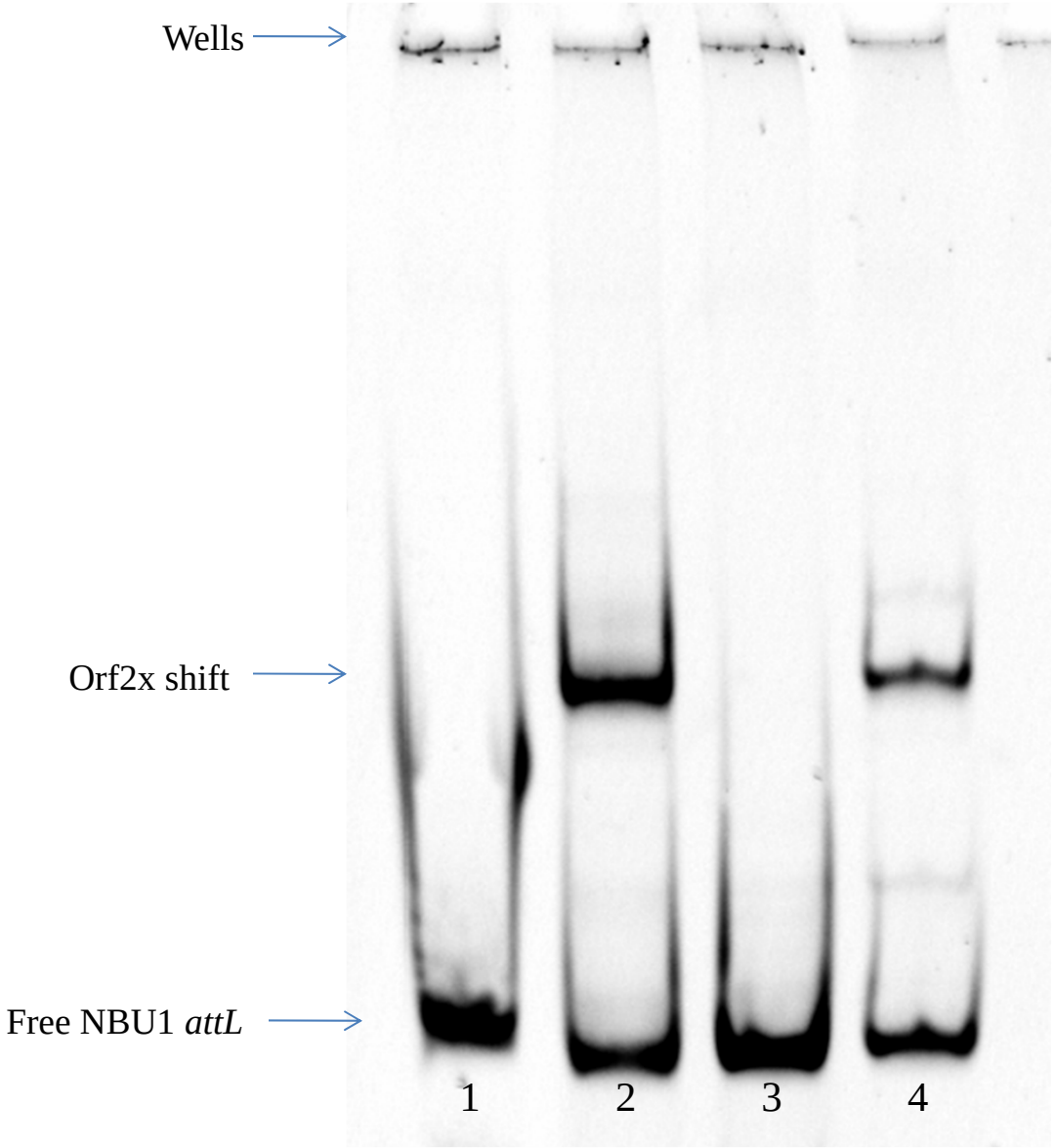

Figure S2B: Gel shift assays with a DNA substrate containing *attL* were used to detect Orf2x activity following purification steps. pET27b empty vector was partially purified using the same protocol and served as a negative control. Lane 1, free *attL* DNA; lane 2, Orf2x (pLR21) extract following heparin-agarose chromatography; lane 3, pET27b extract following heparin and SP chromatography; lane 4, Orf2x (pLR21) extract following heparin and SP chromatography.