

Supplementary Figure S1

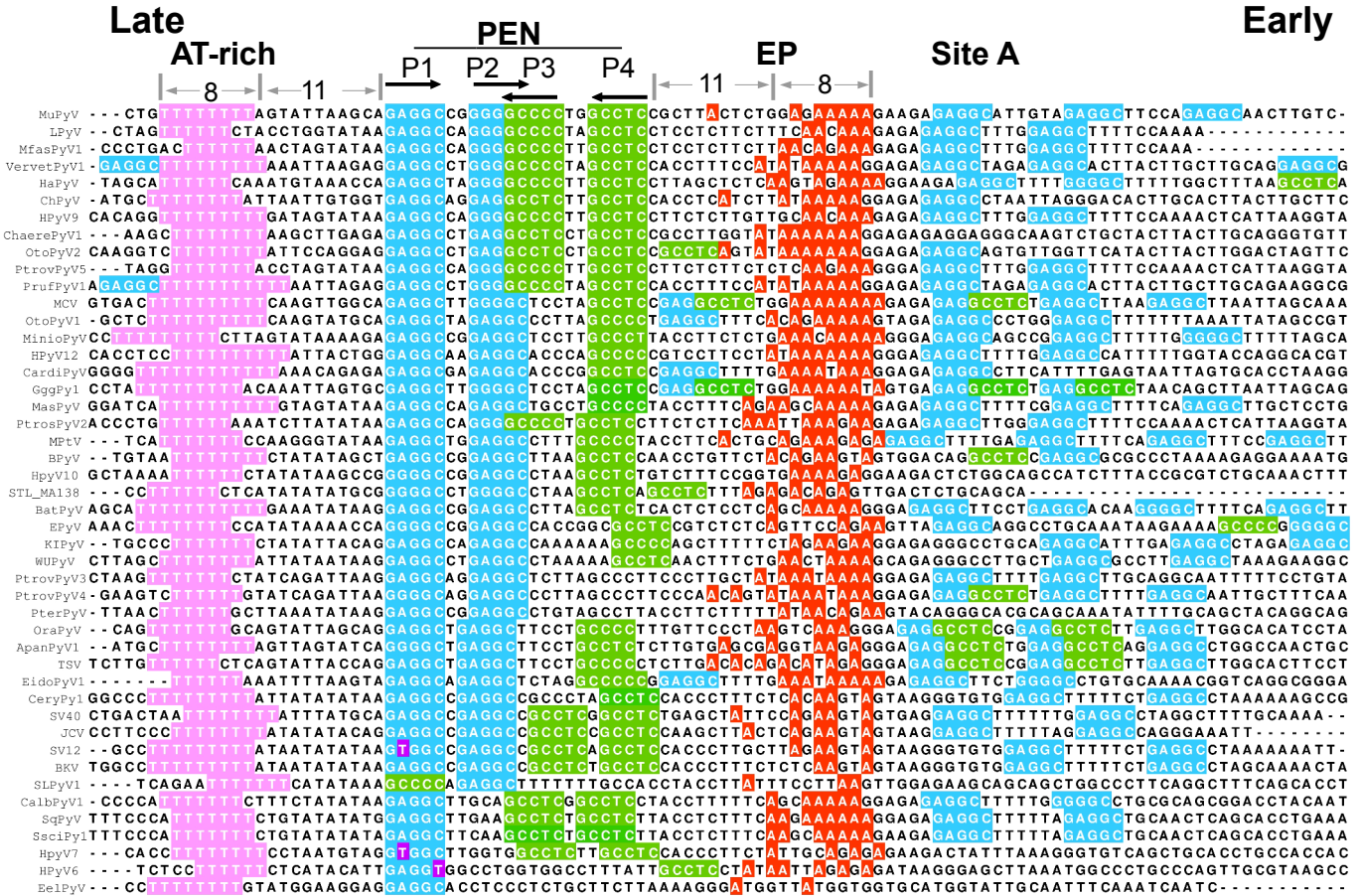
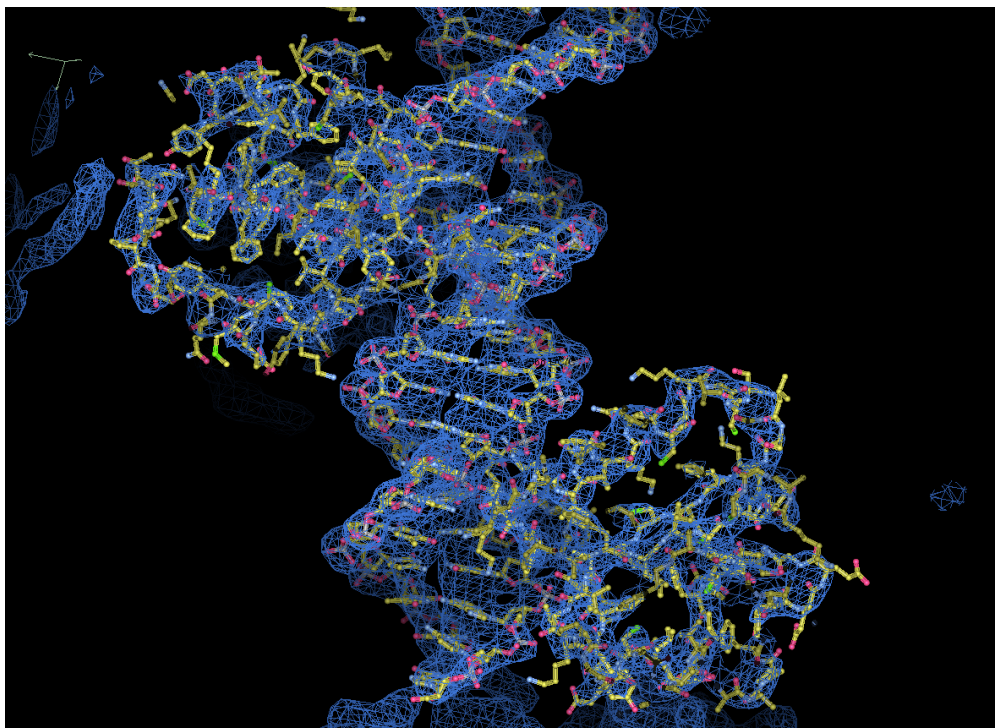


Figure S1. Nucleotide sequence alignment of 46 polyomavirus origins of replication.

The late and early sides of the origins are indicated. The AT-rich, the central pentamer sequences (PEN), and the EP regions are indicated. The adjacent site A region is also indicated. The sequences were manually aligned based on the P1 GAGGC pentamer. G(A/G)GC sequences and their reverse complement are colored blue and green. Imperfect GAGGCs in P1 are indicated by highlighting the nucleotide in purple. Poly(T) sequences on the late side of the origin are colored magenta. Adenosine nucleotides on the opposite side of the PEN origin are colored red. The name of the polyomavirus, its abbreviation, and its Genbank accession number is given in Supplemental Table 2.

Supplemental Figure S2.

A.



B.

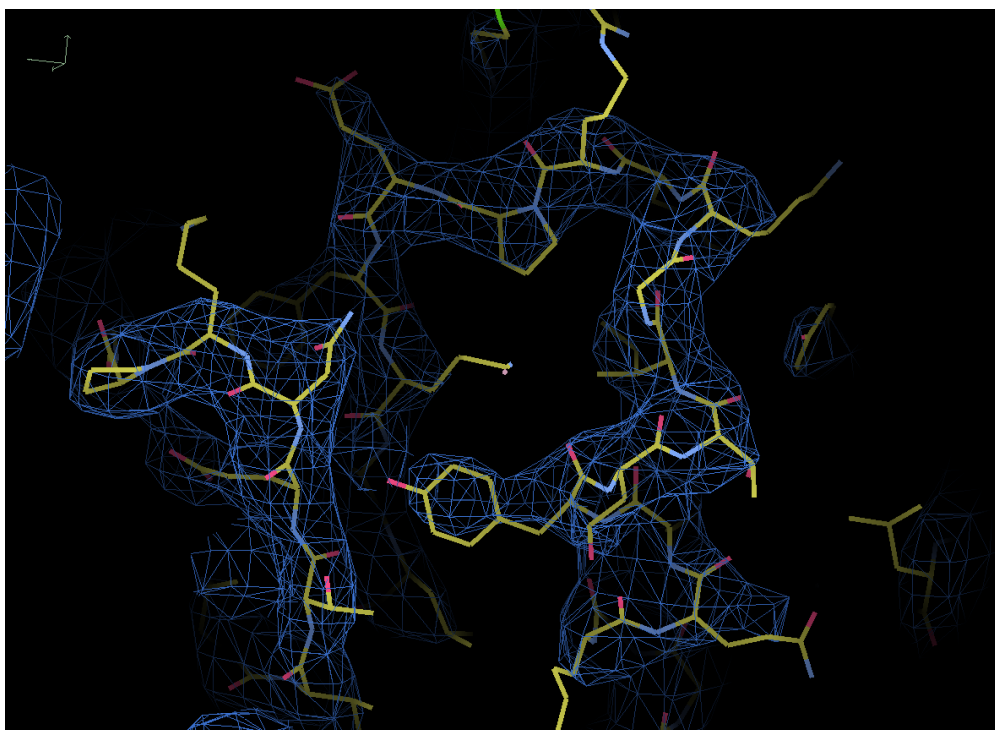


Figure S2. 2Fo-Fc Electron density from the Py DNA/OBD complex. In both figures the density was calculated using Coot and it is displayed at approximately 2 sigma in Coot. No density masking has been applied.

A. Electron density for much of the DNA as well as the origin binding domains bound to sites P1 and P2. The unoccupied P3 is also shown. The large solvent channels in the crystal are evident in this figure.

B. A blowup of some of the density in the obd.

Supplementary Table S1

X-ray Data Collection and Refinement Statistics.

Py OBD + 26mer ORI Duplex DNA	
Data collection	$\lambda = 1.075 \text{ \AA}$
Space group	C 2 2 2 ₁
Cell dimensions	
<i>a, b, c</i> (Å)	165.150 167.922 77.728
α, β, γ (°)	90.0 90.0 90.0
Resolution (Å)	50.00 – 3.79 (3.94 – 3.79)
R_{merge}	17.0% (75.9%)
$I / \sigma I$	28.2 (1.4)
Completeness (%)	99.83 (99.89)
Redundancy	14.3 (14.6)
Refinement	
Resolution (Å)	46.93 – 3.79
No. reflections	11,080
Completeness (%)	99.89% (99.53%)
$R_{\text{work}} / R_{\text{free}}$	0.2218 / 0.2444
R.m.s. deviations	
Bond lengths (Å)	0.005
Bond angles (°)	1.035

Values in parentheses are for the highest resolution bin.

Supplemental Table 2

Polyomavirus name	Abbreviation	Host	Accession #
African green monkey polyomavirus	LPyV	African green monkey	NC_004763
Ateles paniscus polyomavirus 1	ApanPyV1	Red-faced spider monkey	NC_019853
BK polyomavirus	BKPyV	Human	NC_001538
Bovine polyomavirus	BPyV	Bovine	NC_001442
California sea lion polyomavirus 1	SLPyV1	Sea Lion, California	NC_013796
Cardioderma polyomavirus	CardiPyV	Bat, Heart-nosed	NC_020067
Cebus albifrons polyomavirus 1	CalbPyV1	White-fronted capuchin	NC_019854
Cercopithecus erythrotis polyomavirus 1	CeryPyV1	Red-eared guenon	JX159985
Chaerephon polyomavirus 1	ChaeroPyV1	Bat, Free-tailed	NC_020065
Chimpanzee polyomavirus	ChPyV	Chimpanzee	NC_014743
Eidolon polyomavirus 1	EidoPyV1	Bat	NC_020068
Equine polyomavirus	EPyV	Equine	NC_017982
Gorilla gorilla gorilla polyomavirus 1	GggPyV1	Gorilla	HQ385752
Hamster polyomavirus	HaPyV	Hamster	NC_001663
Human polyomavirus 12	HPyV12	Human	NC_020890
Human polyomavirus 9	HPyV9	Human	NC_015150
Human Polyomavirus HPyV6	HPyV6	Human	NC_014406
Human Polyomavirus HPyV7	HPyV7	Human	NC_014407
Japanese eel endothelial cells-infection polyomavirus	EelPyV	Japanese Eel	NC_015123
JC polyomavirus	JCPyV	Human	NC_001699
KI polyomavirus	KIPyV	Human	NC_009238
Macaca fascicularis polyomavirus 1	MfasPyV1	Crab-eating macaque	NC_019851
Mastomys polyomavirus	MasPyV	Mouse	AB_588640
Merkel cell polyomavirus	MCPyV (MCV)	Human	NC_010277
Miniopterus polyomavirus	MinioPyV	Bat	NC_020069
Murine pneumotropic virus	MPTV	Mouse	NC_001505
Murine polyomavirus	MuPyV	Mouse	NC_001515
MW polyomavirus	HPyV10	Human	NC_018102
Myotis polyomavirus VM-2008	BatPyV (MyPyV)	Bat	NC_011310
Orangutan polyomavirus	OraPyV	Orangutan	NC_013439
Otomops polyomavirus 1	OtoPy1	Bat	NC_020071
Otomops polyomavirus 2	OtoPy2	Bat	NC_020066
Pan troglodytes schweinfurthii polyomavirus 2	PtrosPyV2	Eastern Chimpanzee	NC_019858
Pan troglodytes verus polyomavirus 3	PtrovPyV3	Western Chimpanzee	NC_019855
Pan troglodytes verus polyomavirus 4	PtrovPyV4	Western Chimpanzee	NC_019856
Pan troglodytes verus polyomavirus 5	PtrovPyV5	Western Chimpanzee	NC_019857
Piliocolobus rufomitratu polyomavirus 1	PrufPyV1	Eastern Red Colobus	NC_019850
Pteronotus polyomavirus	PterPyV	Bat	NC_020070
Saimiri sciureus polyomavirus 1	SsciPyV1	Squirrel Monkey	JX159989
Simian Agent 12	SA12	Vervet monkey, Baboon	NC_007611
Simian virus 40	SV40	Rhesus Monkey	NC_001669
Squirrel monkey polyomavirus	SqPyV	Squirrel Monkey	NC_009951
STL polyomavirus	STLPyV	Human	NC_020106
Trichodysplasia spinulosa-associated polyomavirus	TSPyV	Human	NC_014361
Vervet monkey polyomavirus 1	VervetPyV1	Vervet monkey	NC_019844
WU Polyomavirus	WUPyV	Human	NC_009539