

**Table S3**  
**Core Genes within the Cultured Cyano-T4 Genomes**

Protein	P-SSM2	P-SSM4	S-PM2	Syn9
<b>Virion Proteins</b>				
gp3 tail completion and sheath stabilizer protein	+	+	+	+
gp4 head completion protein	+	+	+	+
gp5 baseplate hub subunit and tail lysozyme	+	+	+	+
gp6 baseplate wedge subunit	+	+	+	+
gp7 baseplate wedge initiator	+	+	+	+
gp8 baseplate wedge subunit	+	+	+	+
gp13 neck protein	+	+	+	+
gp14 neck protein	+	+	+	+
gp15 tail sheath stabilizer and completion protein	+	+	+	+
gp18 tail sheath protein	+	+	+	+
gp19 tail tube protein	+	+	+	+
gp20 portal vertex protein of head	+	+	+	+
gp21 prohead core scaffold protein and protease	+	+	+	+
gp22 prohead core scaffold protein	+	+	+	+
gp23 major head protein	+	+	+	+
gp25 baseplate wedge subunit	+	+	+	+
gp26 baseplate hub subunit	+	+	+	+
gp48 baseplate tail tube cap	+	+	+	+
gp51 baseplate hub assembly catalyst	+	-	+	+
gp53 baseplate wedge subunit	+	+	+	+
<b>Replication/Recombination/Modification Proteins</b>				
dam DNA adenine methyltransferase	+	+	+	+
gp16 terminase DNA packaging enzyme, small subunit	+	+	+	+
gp17 terminase DNA packaging enzyme, large subunit	+	+	+	+
gp32 single-stranded DNA binding protein	+	+	+	+
gp33 late promoter transcription accessory protein	+	+	+	+
gp41 DNA primase-helicase subunit	+	+	+	+
gp43 DNA polymerase	+	+	+	+
gp44 clamp loader subunit, DNA polymerase accessory protein	+	+	+	+
gp45 sliding clamp, DNA polymerase accessory protein	+	+	+	+
gp46 recombination endonuclease subunit	+	+	+	+
gp47 recombination endonuclease subunit	+	+	+	+
gp55 sigma factor for T4 late transcription	+	+	+	+
gp59 loader of gp41 DNA helicase	+	+	-	+
gp61 DNA primase subunit	+	+	+	+
gp62 clamp loader subunit, DNA polymerase accessory protein	+	+	+	+
nrdA aerobic NDP reductase, large subunit	+	+	+	+
nrdB aerobic NDP reductase, small subunit	+	+	+	+
regA translational repressor protein	+	+	+	+
uvsW RNA-DNA and DNA-DNA helicase, ATPase	+	+	+	+
uvsX RecA-like recombination protein	+	+	+	+
uvsY recombination, repair and ssDNA binding protein	+	+	+	+