SUPPLEMENTAL DATA

Roles of the Four DNA Polymerases of the Crenarchaeon *Sulfolobus solfataricus* and Accessory Proteins in DNA Replication

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FIGURE S2. **Analysis of antibody cross-reactivity using immunoblotting.**

FIGURE S3. **Representative quantitative immunoblots (Dpo1, Dpo3, PCNA1, and RFC)**.

Table S1. **Oligonucleotides used in polymerase chain amplification for Dpo1, Dpo3, PCNA1, PCNA2, PCNA3, and RadA.** All sequences are shown 5' to 3'.

Dpo1

Dpo1_01		GAATTAATTCGGATCCATGACCAAACAGCTGACTCT
Dpo1_02		CTTGGAGCTTGGGATGTCAAACAGAGTCAGCTGTTTGGTC
Dpo1_03		GACATCCCAAGCTCCAAGCCTGCCAAGTCTGAACAGAACA
Dpo1_04		CAGACTGTTGGGATTGTTGCGTGTTCTGTTCAGACTTGGC
Dpo1_05		CAACAATCCCAACAGTCTGCACCTGTGGAGGAAAAAAAGG
Dpo1_06		CGAGCCATTCACGACGCACCACCTTTTTTTCCTCCACAGG
Dpo1_07		CGTCGTGAATGGCTCGAGGAGGCGCAAGAGAATAAGATCT
Dpo1_08		GTCCACCTGCAGCAGGAAGTAGATCTTATTCTCTTGCGCC
Dpo1_09		CCTGCTGCAGGTGGACTATGACGGTAAGAAAGGTAAGGCT
Dpo1_10		CTTATCGAACAGCTTGCACACAGCCTTACCTTTCTTACCG
Dpo1_11		GTGCAAGCTGTTCGATAAGGAAACCCAGAAAATCTATGCA
Dpo1_12		GGCCGGTGTTATCATAGAGTGCATAGATTTTCTGGGTTTC
Dpo1_13		CTCTATGATAACACCGGCCACAAACCTTACTTTCTGGTTG
Dpo1_14		ACCTTGTCCGGTTCCAGGTCAACCAGAAAGTAAGGTTTGT
Dpo1_15		TGGAACCGGACAAGGTTGGCAAGATCCCTAAGATTGTCCG
Dpo1_16		TATGATCGAAGCTCGGATCACGGACAATCTTAGGGATCTT
Dpo1_17		GATCCGAGCTTCGATCATATCGAGACGGTGTCTAAGATCG
Dpo1_18		ACTTATTCCACGTGTAAGGGTCGATCTTAGACACCGTCTC
Dpo1_19		CCCTTACACGTGGAATAAGTTCAAGCTCACCAAAATCGTT
Dpo1_20		GACCGCCAGCGGATCGCGAACAACGATTTTGGTGAGCTTG
Dpo1_21		ATCCGCTGGCGGTCCGCCGTCTGCGTAACGATGTGCCGAA
Dpo1_22		ATTTGATGTGGGCCTCGTATGCTTTCGGCACATCGTTACG
Dpo1_23		CGAGGCCCACATCAAATACTTTAACAACTACATGTACGAC
Dpo1_24		ACCAGGGATCAGACCGATGTCGTACATGTAGTTGTTAAAG
Dpo1_25		CGGTCTGATCCCTGGTATGCCTTACGTTGTAAAGAACGGC
Dpo1_26		CAGGTATACAGATTCGAGTTTGCCGTTCTTTACAACGTAA
Dpo1_27		AAACTCGAATCTGTATACCTGTCTCTGGACGAAAAGGACG
Dpo1_28		AACGCCTTTTTGATCTCTTCGACGTCCTTTTCGTCCAGAG
Dpo1_29		GAAGAGATCAAAAAGGCGTTCGCAGACTCTGATGAGATGA
Dpo1_30		AGTCAACGGCCATCTGACGAGTCATCTCATCAGAGTCTGC
Dpo1_31		TCAGATGGCCGTTGACTGGCTGCCGATCTTCGAAACCGAA
Dpo1_32		CAACGCGCTTGATCTTTGGAATTTCGGTTTCGAAGATCGG
Dpo1_33		CAAAGATCAAGCGCGTTGCAATTGACATTGAAGTCTACAC
Dpo1_34		ATGCGGCCCTTTACCGGAGTGTAGACTTCAATGTCAATTG
Dpo1_35		CGGTAAAGGGCCGCATTCCGGATTCTCAGAAAGCAGAATT
Dpo1_36		CGCGATGCTAATGATAGGAAATTCTGCTTTCTGAGAATCC
Dpo1_37		TCCTATCATTAGCATCGCGCTCGCGGGTTCCGACGGCCTG
Dpo1_38		TACGATTCAGAACGAGGACTTTCTTCAGGCCGTCGGAACC
Dpo1_39		GTCCTCGTTCTGAATCGTAATGACGTAAACGAGGGCTCTG
Dpo1_40		GACAGAAATACCGTCCAGTTTAACAGAGCCCTCGTTTACG
Dpo1_41		ACTGGACGGTATTTCTGTCGAGCGTTTCAATACTGAGTAC
Dpo1_42		AGAAACGGCCGAGCAGCTCGTACTCAGTATTGAAACGCTC
Dpo1_43		TGCTCGGCCGTTTCTTCGATATTCTCCTGGAGTACCCGAT

Dpo1_44		CGTCACCGTTAAAGGTGAGCACGATCGGGTACTCCAGGAG
Dpo1_45		TCACCTTTAACGGTGACGACTTCGACCTGCCGTATATCTA
Dpo1_46		CCCAGTTTCAGCGCACGGAAATAGATATACGGCAGGTCGA
Dpo1_47		GTGCGCTGAAACTGGGTTATTTCCCAGAGGAGATCCCGAT
Dpo1_48		CCTCATCTTTACCAGCGACATCAATCGGGATCTCCTCTGG
Dpo1_49		TCGCTGGTAAAGATGAGGCCAAATACCTCGCAGGTCTCCA
Dpo1_50		AAAAAGAACTTGTACAGATCAATGTGGAGACCTGCGAGGT
Dpo1_51		ATTGATCTGTACAAGTTCTTTTTCAACAAAGCGGTTCGCA
Dpo1_52		TATACTTGCCCTCGAATGCGTAGTTGCGAACCGCTTTGTT
Dpo1_53		GCATTCGAGGGCAAGTATAACGAGTACAACCTCGACGCAG
Dpo1_54		GGTACCCAGCAGCGCTTTAGCCACTGCGTCGAGGTTGTAC
Dpo1_55		GCGCTGCTGGGTACCTCTAAAGTGAAAGTGGACACGCTGA
Dpo1_56		TTTCTCAACATCGAGGAAAGAAATCAGCGTGTCCACTTTC
Dpo1_57		CTTTCCTCGATGTTGAGAAACTCATCGAATACAACTTCCG
Dpo1_58		GGAGAGTAATTTCCGCGTCACGGAAGTTGTATTCGATGAG
Dpo1_59		ACGCGGAAATTACTCTCCAACTGACGACGTTCAATAATGA
Dpo1_60		CAATCAGCTTCATAGTGAGGTCATTATTGAACGTCGTCAG
Dpo1_61		CCTCACTATGAAGCTGATTGTGCTGTTTTCTCGCATCTCT
Dpo1_62		CAGTTCCTCAATACCCAGGCGAGAGATGCGAGAAAACAGC
Dpo1_63		CCTGGGTATTGAGGAACTGACCCGCACCGAGATTTCTACT
Dpo1_64		AGTAATAGAGATTTTTGACCCAAGTAGAAATCTCGGTGCG
Dpo1_65		TGGGTCAAAAATCTCTATTACTGGGAACACCGCAAACGTA
Dpo1_66		CTCTTTGAGAGGAATGAGCCAATTACGTTTGCGGTGTTCC
Dpo1_67		GCTCATTCCTCTCAAAGAGGAAATCCTCGCTAAATCTAGC
Dpo1_68		GAGCAGACGTGCGGATATTGCTAGATTTAGCGAGGATTTC
Dpo1_69		TCCGCACGTCTGCTCTGATTAAAGGCAAAGGCTACAAAGG
Dpo1_70		TGGAGGGTCAATGACGACCGCACCTTTGTAGCCTTTGCCT
Dpo1_71		TCGTCATTGACCCTCCAGCCGGCATCTTCTTCAATATTAC
Dpo1_72		GATGCGAAATCGAGCACCGTAATATTGAAGAAGATGCCGG
Dpo1_73		GGTGCTCGATTTCGCATCCCTGTACCCGTCTATCATCCGT
Dpo1_74		GTCTCATAGCTGAGGTTCCAAGTACGGATGATAGACGGGT
Dpo1_75		GGAACCTCAGCTATGAGACTGTGGACATCCAGCAGTGCAA
Dpo1_76		CATCCTTAACTTCATATGGTTTTTTGCACTGCTGGATGTC
Dpo1_77		AAAACCATATGAAGTTAAGGATGAAACGGGTGAAGTGCTG
Dpo1_78		GGACGGTCCATGCAGACAATATGCAGCACTTCACCCGTTT
Dpo1_79		TCTGCATGGACCGTCCTGGCATCACCGCTGTCATCACTGG
Dpo1_80		TTCACACGAAAATCACGCAGGAGGCCAGTGATGACAGCGG
Dpo1_81		GCGTGATTTTCGTGTGAAGATTTACAAGAAGAAGGCGAAG
Dpo1_82		CCTCGGAGTTATTTGGGTTCTTCGCCTTCTTCTTGTAAAT
Dpo1_83		AACCCAAATAACTCCGAGGAGCAAAAACTGCTCTACGACG
Dpo1_84		CTTTCATCGCACGCTGCACTACGTCGTAGAGCAGTTTTTG
Dpo1_85		CAGCGTGCGATGAAAGTTTTCATCAATGCGACCTATGGTG
Dpo1_86		GGAAAAGTTTCCGCACCAAAGACACCATAGGTCGCATTGA
Dpo1_87		TGGTGCGGAAACTTTTCCACTGTATGCTCCGGCAGTCGCG
Dpo1_88		TAGCGACCCAGCGCGGTAACGGATTCCGCGACTGCCGGAG
Dpo1_89		GCGCTGGGTCGCTATGTGATTACCTCCACGGTGAAAAAAG
Dpo1_90		ACGGTCAGGCCTTCCTCGCGCGCTTTTTTCACCGTGGAGG
Dpo1_91		GGAAGGCCTGACCGTGCTGTACGGTGATACGGACTCCCTG

Dpo1_92		TTTTCGGCGGATTCAGCAGAAACAGGGAGTCCGTATCACC
Dpo1_93		GCTGAATCCGCCGAAAAATTCCCTCGAGAACATTATCAAG
Dpo1_94		TTGAAGGTCGTCTTAACCCACTTGATAATGTTCTCGAGGG
Dpo1_95		GGGTTAAGACGACCTTCAATCTGGATCTCGAAGTTGACAA
Dpo1_96		AACGCCACGAATTTGTAAGTCTTGTCAACTTCGAGATCCA
Dpo1_97		CTTACAAATTCGTGGCGTTTTCCGGTCTCAAAAAAAACTA
Dpo1_98		GTCTTGGTACACACCGAAGTAGTTTTTTTTGAGACCGGAA
Dpo1_99		TTCGGTGTGTACCAAGACGGCAAGGTAGACATTAAGGGCA
Dpo1_100		GTTACGCTTCTTAACGAGCATGCCCTTAATGTCTACCTTG
Dpo1_101		GCTCGTTAAGAAGCGTAACACGCCGGAGTTCGTCAAGAAG
Dpo1_102		GTTCCTTGACCTCGTTGAACACCTTCTTGACGAACTCCGG
Dpo1_103		TCAACGAGGTCAAGGAACTCATGATCTCCATCAATAGCCC
Dpo1_104		TTAATCTCTTTCACGTCGTTTGGGCTATTGATGGAGATCA
Dpo1_105		AAACGACGTGAAAGAGATTAAACGCAAAATTGTTGACGTG
Dpo1_106		GCTTCTCGTAAGAACCTTTCACCACGTCAACAATTTTGCG
Dpo1_107		GAAAGGTTCTTACGAGAAGCTCAAGAACAAGGGCTATAAC
Dpo1_108		TTAAATGCCAGTTCATCCAGGTTATAGCCCTTGTTCTTGA
Dpo1_109		CTGGATGAACTGGCATTTAAGGTTATGCTCTCTAAACCGC
Dpo1_110		TGTTTTTCTTATAGGCGTCCAGCGGTTTAGAGAGCATAAC
Dpo1_111		GGACGCCTATAAGAAAAACACCCCGCAACACGTGAAGGCG
Dpo1_112		GCCGAATGGGCGGAGCTGGAGTGCCGCCTTCACGTGTTGC
Dpo1_113		TCCGCCCATTCGGCGTCAACGTTCTGCCGCGTGACATCAT
Dpo1_114		TTGCTACGCACTTTTACATAGTAGATGATGTCACGCGGCA
Dpo1_115		CTATGTAAAAGTGCGTAGCAAGGATGGCGTGAAACCTGTC
Dpo1_116		ATTTCAGTAACTTTGGCGAGTTGGACAGGTTTCACGCCAT
Dpo1_117		CTCGCCAAAGTTACTGAAATTGACGCAGAAAAGTATCTGG
Dpo1_118		CGAAAGTAGAGCGGAGAGCCTCCAGATACTTTTCTGCGTC
Dpo1_119		CTCTCCGCTCTACTTTCGAGCAGATCCTCCGCGCGTTTGG
Dpo1_120		TCGCGGCGATCTCGTCCCAGGACACACCAAACGCGCGGAG
Dpo1_121		CGAGATCGCCGCGACCATGTCTATCGACAGCTTTTTCTCC
Dpo1_122		GAGTTACCCTTGGAAGGGTAGGAGAAAAAGCTGTCGATAG
Dpo1_123		CCCTTCCAAGGGTAACTCTCACCATCATCACCACCACTGA
Dpo1_124		GACGGAGCTCGAATTCTCAGTGGTGGTGATGATG

Dpo3

Dpo3_01		GAATTAATTCGGATCCATGATTAAAGACTTCTTTATC
Dpo3_02		ATCTCGTAGGAGAAGTCGAGGATAAAGAAGTCTTTAATCATGGAT
Dpo3_03		TCGACTTCTCCTACGAGATTAAGGGTAACACCCCGCTGGTATACA
Dpo3_04		GAGTTGCCCTCGTCATCCACGGACCAGATGTATACCAGCGGGGTG
Dpo3_05		GATGACGAGGGCAACTCCTCTGTAGTGATCGACAACAACTTCCGT
Dpo3_06		GCCTTCGTAGATGATGTAGAAGTACGGACGGAAGTTGTTGTCGAT
Dpo3_07		TCTACATCATCTACGAAGGCAACGAGAACGAGATCATTGAGAACA
Dpo3_08		TGCAGCGCTTCGCAATTCTTTTTGATGTTCTCAATGATCTCGTTC
Dpo3_09		TGCGAAGCGCTGCAAATCACCAAAGTAAAACGTAAATACCTGGGT
Dpo3_10		GATGAGCAGGGCGTCCACGATGTTACCCAGGTATTTACGTTTTAC
Dpo3_11		GGACGCCCTGCTCATCCAGACGTCTACCCCGACTCAGATCAAGAA
Dpo3_12		TTGAGTTCAGAGATTTTCTCGCGGCACTTCTTGATCTGAGTCGGG
Dpo3_13		CGAGAAAATCTCTGAACTCAACAACATCAAGGGCATCTTCGACGC

Dpo3_14		AGGGAGTAACGCATGGTGTAACGGATGTCCGCGTCGAAGATGCCC
Dpo3_15		ACCATGCGTTACTCCCTGGATTTCGACCTGCGTCCGTTCACGTGG
Dpo3_16		GAACTTCACCTCGTTCACTTCAGCGCGGAACCACGTGAACGGACG
Dpo3_17		AGTGAACGAGGTGAAGTTCGACGGTTTCCGCACTAAAAAGGCGTA
Dpo3_18		TAATGGGACAGGATCTTGTCGAGGATGTACGCCTTTTTAGTGCGG
Dpo3_19		GACAAGATCCTGTCCCATTATGAGGGTAATATGCCAGAACTCCGT
Dpo3_20		TAGATCTGGAAGTCCACACCAATCGTACGGAGTTCTGGCATATTA
Dpo3_21		GTGTGGACTTCCAGATCTACTCTAAATACGGTTCCCTCAACCCGC
Dpo3_22		ACAGGCTCATGACGACGATCGGGTCTTTGCGCGGGTTGAGGGAAC
Dpo3_23		GTCGTCATGAGCCTGTGGTCTAAGGAAGGCCCGATGCAGTTTAGC
Dpo3_24		ATCTTGAGGTCGTCAATGCCTTCGTCCAGGCTAAACTGCATCGGG
Dpo3_25		GCATTGACGACCTCAAGATTATCCGCCGTTTCGTTGATTATATCC
Dpo3_26		AAAATGATGTCCGGGTCGTAGTTCAGGATATAATCAACGAAACGG
Dpo3_27		CGACCCGGACATCATTTTCGTCTACGACAGCGACCTCCTGCCGTG
Dpo3_28		AGAGAAGACGCACGCTCCGTGATATACTTCCACGGCAGGAGGTCG
Dpo3_29		AGCGTGCGTCTTCTCTCGGCGTGAAAATTGACATTGGTCGTAAGA
Dpo3_30		TGCCTACAGAAACCTCGCTGCCGATCTTACGACCAATGTCAATTT
Dpo3_31		GCGAGGTTTCTGTAGGCACTTACGGCCACTACTCCATCAGCGGCC
Dpo3_32		CGAGCAGACCCGTGAGGTCGACGTTGAGACGGCCGCTGATGGAGT
Dpo3_33		TCACGGGTCTGCTCGTGAATGAGCGTTCTCTGGGCCACGTGGATC
Dpo3_34		AGATGCCGAGGTAATTGGAAACGTCAATCAGATCCACGTGGCCCA
Dpo3_35		CCAATTACCTCGGCATCTCTCCGAGCCGCTATTCCTTCAAGTGGT
Dpo3_36		GTTGTCCCAGTAGCGGGAGATTTCGTACCACTTGAAGGAATAGCG
Dpo3_37		CCGCTACTGGGACAACGAGAAGAACCGTCGTATCATCCGTGAATA
Dpo3_38		GATGGAGCGCGCATTCTCGATAGAGTATTCACGGATGATACGACG
Dpo3_39		GAATGCGCGCTCCATCTACCTCCTGGGCAACTACCTGCTCTCCAC
Dpo3_40		CCCACGATCTTCACCAGCTCGGAATAGGTGGAGAGCAGGTAGTTG
Dpo3_41		CTGGTGAAGATCGTGGGCCTCCCTCTCGACAAGCTCAGCGTAGCT
Dpo3_42		GGCTGGTTTCAATGCGATTACCCCAAGAAGCTACGCTGAGCTTGT
Dpo3_43		TCGCATTGAAACCAGCCTCATCCGCACCGCGACTAAATCCGGCGA
Dpo3_44		TCGGATTGTCCATGCGGATCGGAATCAGCTCGCCGGATTTAGTCG
Dpo3_45		CGCATGGACAATCCGAACCGCCCGAGCAAAATCAAAAAAAACATC
Dpo3_46		TACCGACCTTCGGCTGGATGATGATGTTTTTTTTGATTTTGCTCG
Dpo3_47		CAGCCGAAGGTCGGTATCTACACTGATGTCTATGTGCTCGACATT
Dpo3_48		CGAATGACCAGGCTGTAAACAGAGCTAATGTCGAGCACATAGACA
Dpo3_49		TTACAGCCTGGTCATTCGCAAATTCAATATCGCTCCGGATACCCT
Dpo3_50		AGTAGCAGTCATCACACTGTTCCTTAACCAGGGTATCCGGAGCGA
Dpo3_51		CAGTGTGATGACTGCTACTCCTCCCCTATCAGCAACTATAAGTTC
Dpo3_52		TAGAGACCAGACGGCTCACGCTTGAACTTATAGTTGCTGATAGGG
Dpo3_53		GAGCCGTCTGGTCTCTACAAAACCTTTCTCGATGAACTGTCTAAC
Dpo3_54		CTTAATCTTGTTAGAGTCGCGTACGTTAGACAGTTCATCGAGAAA
Dpo3_55		CGCGACTCTAACAAGATTAAGGTCATCGAAGAGCTCATCTCCTCT
Dpo3_56		TTCACCCAATGTACGTAGTCGTTAAAAGAGGAGATGAGCTCTTCG
Dpo3_57		ACTACGTACATTGGGTGAACGCCCGTTGGTACAGCCGTGAGATCG
Dpo3_58		TCATTGGAGAACTCGTCGAAGGCGGATGCGATCTCACGGCTGTAC
Dpo3_59		CGACGAGTTCTCCAATGAAATCATCCGCTTCATCATTGACCTCAT
Dpo3_60		GGATCACGTCCAGACCGCTGGACTTGATGAGGTCAATGATGAAGC

Dpo3_61		GGTCTGGACGTGATCCTGGCGAACGACCTGCTGATCTTTGTGACT
Dpo3_62		TCGTTAACCTTGTCGCGGGAGCCGCCAGTCACAAAGATCAGCAGG
Dpo3_63		CGCGACAAGGTTAACGAGCTCATCACGAAGATCAATTCTCTGTAC
Dpo3_64		AATCTTTACCTTCACATCGAGATTGTACAGAGAATTGATCTTCGT
Dpo3_65		CTCGATGTGAAGGTAAAGATTTTCTACAAGTCCCTGCTGGTGCTG
Dpo3_66		CTCGGACAGACCGGCGTAACGATTGTTGTCCAGCACCAGCAGGGA
Dpo3_67		GCCGGTCTGTCCGAGGGTGACAAGATCGACATCGCCCGCAAAGGT
Dpo3_68		TGCGAGTTCGCACAGGTTCATGTCCTCCTCACCTTTGCGGGCGAT
Dpo3_69		CTGTGCGAACTCGCACGCAACATTAAGCGCAAGATCATCGAGGAA
Dpo3_70		TTTCTTCACGTCCTTGGAGATCAGGATTTCCTCGATGATCTTGCG
Dpo3_71		CTCCAAGGACGTGAAGAAAGCCATCAAGCTCGTGAAGAGCACGGT
Dpo3_72		TGTCAAACTCACCGCGACGCAGCTTGATTACCGTGCTCTTCACGA
Dpo3_73		CGCGGTGAGTTTGACAATGAGGAGCTGATCACTTGGGCGAAAATC
Dpo3_74		TTGTTGTATTCGTTCAGGTCGCGCTCGATTTTCGCCCAAGTGATC
Dpo3_75		GACCTGAACGAATACAACAACCAGCTCCCGTTTGTTACCGCCGCA
Dpo3_76		ATGAGGTAGCCAGACTGGATCGCCTTACGTGCGGCGGTAACAAAC
Dpo3_77		CCAGTCTGGCTACCTCATTTCCAAAGACAGCAAAATCGGCTACGT
Dpo3_78		GTTGAGCGGACCGAGGCCTTTCACGATAACGTAGCCGATTTTGCT
Dpo3_79		CCTCGGTCCGCTCAACGACCGTGCGGAGCCGTTCTTCCTCGTCAA
Dpo3_80		TATTCGATGTCGATGCGGTTTTTCTCCTTGACGAGGAAGAACGGC
Dpo3_81		CCGCATCGACATCGAATACTACGTGGACCAAATTTTCCGCGAAAC
Dpo3_82		CGCCCAGCGGTTTCAGCAGTTTCAGGGTTTCGCGGAAAATTTGGT
Dpo3_83		TGAAACCGCTGGGCGTAAACGAAGAGTCTCTGAAGAAGACCAACA
Dpo3_84		CCAAAGAGGTCCAGGATGTCGGTGATGTTGGTCTTCTTCAGAGAC
Dpo3_85		CATCCTGGACCTCTTTGGCGCGTCTAAGAAGAAATGAGAATTCGA
Dpo3_86		GACGGAGCTCGAATTCTCATTTCTTCTTAGA

PCNA1

PCNA1_01		GAATTAATTCGGATCCATGATTTACT
PCNA1_02		TGCGCTCGAAGCTCTTCAAGTAAATCATGGATCCGAATTA
PCNA1_03		AGAGCTTCGAGCGCAATATTCGTCTGATCAACATGAAGGT
PCNA1_04		CGCGCACATCATCGTAAACAACCTTCATGTTGATCAGACG
PCNA1_05		TTACGATGATGTGCGCGTCCTGAAAGATATCATACAGGCG
PCNA1_06		CGTCCACAAGGCGCGCAAGCGCCTGTATGATATCTTTCAG
PCNA1_07		GCGCCTTGTGGACGAAGCGGTGCTGAAATTCAAACAGGAT
PCNA1_08		AACGCCACCAGTTCCACCGAATCCTGTTTGAATTTCAGCA
PCNA1_09		TGGAACTGGTGGCGTTAGATCGTGCCCATATTTCCCTTAT
PCNA1_10		CACGCGGCAGATTCACGCTGATAAGGGAAATATGGGCACG
PCNA1_11		GTGAATCTGCCGCGTGAAATGTTCAAAGAGTACGACGTCA
PCNA1_12		ACCCGAACTTGAACTCATCGTTGACGTCGTACTCTTTGAA
PCNA1_13		GATGAGTTCAAGTTCGGGTTTAACACCCAGTACCTGATGA
PCNA1_14		CGCTTCGCGACTTTCAGTATCTTCATCAGGTACTGGGTGT
PCNA1_15		TGAAAGTCGCGAAGCGCAAAGAGGCCATTGAAATTGCGAG
PCNA1_16		GATCACGCTATCTGGGCTTTCGCTCGCAATTTCAATGGCC
PCNA1_17		GCCCAGATAGCGTGATCATTAACATTATAGGCAGCACTAA
PCNA1_18		CGAACGTTAAACTCGCGATTAGTGCTGCCTATAATGTTAA

PCNA1_19		CGCGAGTTTAACGTTCGTAATCTGGAAGTTAGCGAACAGG
PCNA1_20		TGCAGGTTAATTTCGGGAATCTCCTGTTCGCTAACTTCCA
PCNA1_21		TCCCGAAATTAACCTGCAATTTGACATTAGCGCGACCATT
PCNA1_22		GCGCTTTTGAAGCCATCGCTGCTAATGGTCGCGCTAATGT
PCNA1_23		GATGGCTTCAAAAGCGCGATAAGCGAAGTAAGCACCGTGA
PCNA1_24		GCCCTCCACGACCACATTATCGGTCACGGTGCTTACTTCG
PCNA1_25		GTGGTCGTGGAGGGCCATGAGGATCGTATCCTGATTAAAG
PCNA1_26		CTTCCGACTCCCCCTCCGCTTTAATCAGGATACGATCCTC
PCNA1_27		GAGGGGGAGTCGGAAGTGGAGGTGGAATTTAGCAAAGATA
PCNA1_28		GGTCCTGCAGACCCCCGGTATCTTTGCTAAATTCCACCTC
PCNA1_29		GGGGTCTGCAGGACCTTGAGTTCTCCAAAGAGAGCAAAAA
PCNA1_30		GTATTCGGCGCTATAGGAATTTTTGCTCTCTTTGGAGAAC
PCNA1_31		TTCCTATAGCGCCGAATACCTGGACGATGTACTGAGCCTG
PCNA1_32		TGACATAATCCGACAGCTTGGTCAGGCTCAGTACATCGTC
PCNA1_33		AAGCTGTCGGATTATGTCAAGATAAGCTTTGGCAATCAGA
PCNA1_34		GAAAAACAGCTGCAGAGGTTTCTGATTGCCAAAGCTTATC
PCNA1_35		CCTCTGCAGCTGTTTTTCAATATGGAAGGAGGAGGGAAGG
PCNA1_36		TTTGGGCGCTAACAGATAGGTCACCTTCCCTCCTCCTTCC
PCNA1_37		TATCTGTTAGCGCCCAAAGTGCATCACCACCATCATCATT
PCNA1_38		GACGGAGCTCGAATTCTCAATGATGATGGTGGTGATG

PCNA2

PCNA2_01		GAATTAATTCGGATCCATGATGAAAGCGAAAGTTATC
PCNA2_02		AGAGAAAGAAACCGCGTCGATAACTTTCGCTTTCATCATG
PCNA2_03		GACGCGGTTTCTTTCTCTTACATTCTGCGTACTGTTGGTG
PCNA2_04		GAAGTTGGCCTCGCTCAGGAAGTCACCAACAGTACGCAGA
PCNA2_05		GAGCGAGGCCAACTTCATCGTTACCAAAGAAGGTATCCGT
PCNA2_06		GACGGGTCGATACCAGAAACACGGATACCTTCTTTGGTAA
PCNA2_07		TCTGGTATCGACCCGTCCCGTGTAGTTTTCCTCGACATCT
PCNA2_08		GAAGTAAGAAGACGGCAGAAAGATGTCGAGGAAAACTACA
PCNA2_09		TCTGCCGTCTTCTTACTTCGAGGGTTTCGAGGTGTCTCAA
PCNA2_10		TGAAACCGATGATTTCTTTTTCTTGAGACACCTCGAAACC
PCNA2_11		GAAAAAGAAATCATCGGTTTCAAGCTGGAAGACGTAAACG
PCNA2_12		TTGAGAACACGTTTCAGGATGTCGTTTACGTCTTCCAGCT
PCNA2_13		TCCTGAAACGTGTTCTCAAGGACGACACGCTGATCCTGTC
PCNA2_14		GGGTCAGTTTAGATTCGTTAGAAGACAGGATCAGCGTGTC
PCNA2_15		CTAACGAATCTAAACTGACCCTGACCTTCGATGGTGAATT
PCNA2_16		GGCAGTTCGAAAGAACGAGTAAATTCACCATCGAAGGTCA
PCNA2_17		TCGTTCTTTCGAACTGCCTCTGATCCAGGTTGAATCTACC
PCNA2_18		AGATTAACAGACGGAGGCTGGGTAGATTCAACCTGGATCA
PCNA2_19		GCCTCCGTCTGTTAATCTGGAGTTCCCGTTCAAAGCGCAG
PCNA2_20		GTCCGCGAACGTGATGGTCAGGAGCTGCGCTTTGAACGGG
PCNA2_21		CATCACGTTCGCGGACATCATCGACGAACTCTCCGACCTG

PCNA2_22		CTGTGGATGTTGAGGACTTCACCCAGGTCGGAGAGTTCGT
PCNA2_23		AAGTCCTCAACATCCACAGCAAAGAGAACAAGCTGTACTT
PCNA2_24		GAGATCACCAATCACCTCAAAGTACAGCTTGTTCTCTTTG
PCNA2_25		TGAGGTGATTGGTGATCTCTCTACTGCCAAAGTTGAACTG
PCNA2_26		AGGGTACCGTTGTCGGTAGACAGTTCAACTTTGGCAGTAG
PCNA2_27		CCGACAACGGTACCCTGCTCGAGGCTTCCGGTGCTGACGT
PCNA2_28		GTATTCCATACCGTAGCTAGAAGAAACGTCAGCACCGGAA
PCNA2_29		TCTAGCTACGGTATGGAATACGTTGCGAACACGACCAAAA
PCNA2_30		CATAGAGTCAGACGCACGACGCATTTTGGTCGTGTTCGCA
PCNA2_31		CGTGCGTCTGACTCTATGGAACTCTATTTCGGTTCTCAGA
PCNA2_32		AAACGCAGCTTCAGTGGGATCTGAGAACCGAAATAGAGTT
PCNA2_33		CCACTGAAGCTGCGTTTTAAGCTGCCGCAGGAAGGTTATG
PCNA2_34		ACGCGGTGCAATGTAGAAATCGCCATAACCTTCCTGCGGC
PCNA2_35		CTACATTGCACCGCGTGCGGACCACCACCATCATCACCAC
PCNA2_36		GACGGAGCTCGAATTCTCAGTGGTGATGATGGTGGTG

PCNA3

PCNA3_01		GAATTAATTCGGATCCATGTTCA
PCNA3_02		GCGTTCGGGTAAACGATTTTGAACATGGATCCGAATTAATT
PCNA3_03		ATCGTTTACCCGAACGCGAAGGACTTCTTCAGCTTTATCAA
PCNA3_04		CGGTCACGTTGGTAATAGAGTTGATAAAGCTGAAGAAGTCC
PCNA3_05		TCTATTACCAACGTGACCGACAGCATTATCCTGAACTTTAC
PCNA3_06		AGAGAAGATACCGTCCTCCGTAAAGTTCAGGATAATGCTGT
PCNA3_07		GGAGGACGGTATCTTCTCTCGTCACCTCACCGAAGACAAAG
PCNA3_08		GATGCGCATGATCGCCATCAGTACTTTGTCTTCGGTGAGGT
PCNA3_09		GGCGATCATGCGCATCCCGAAAGACGTTCTGTCTGAATACT
PCNA3_10		AGAGGTCGGAGAGTCGATAGAGTATTCAGACAGAACGTCTT
PCNA3_11		TCGACTCTCCGACCTCTGTTAAGCTGGACGTTTCTAGCGTT
PCNA3_12		GACGCTTTAGACAGGATCTTTTTAACGCTAGAAACGTCCAG
PCNA3_13		AGATCCTGTCTAAAGCGTCTTCTAAAAAAGCGACCATCGAA
PCNA3_14		ACCAGAGTCCGTTTCAGTCAGTTCGATGGTCGCTTTTTTAG
PCNA3_15		ACTGAAACGGACTCTGGTCTGAAGATCATCATCCGTGACGA
PCNA3_16		TGGTAGATTTCGCACCAGACTTTTCGTCACGGATGATGATC
PCNA3_17		CTGGTGCGAAATCTACCATCTACATCAAAGCGGAAAAAGGT
PCNA3_18		GTTCGGTCAGCTGTTCAACCTGACCTTTTTCCGCTTTGATG
PCNA3_19		TGAACAGCTGACCGAACCGAAAGTTAACCTGGCAGTAAATT
PCNA3_20		AACAGATTCGTCGGTGGTGAAATTTACTGCCAGGTTAACTT
PCNA3_21		CCACCGACGAATCTGTTCTGAACGTTATCGCTGCGGATGTC
PCNA3_22		ACGCATTTCTTCACCAACGAGGGTGACATCCGCAGCGATAA
PCNA3_23		GTTGGTGAAGAAATGCGTATCTCTACCGAGGAGGATAAAAT
PCNA3_24		CCTCACCTGCCTCGATCTTGATTTTATCCTCCTCGGTAGAG
PCNA3_25		ATCGAGGCAGGTGAGGAGGGTAAGCGTTATGTTGCGTTTCT
PCNA3_26		CTTTGAGCGGCTTGTCCTTCATCAGAAACGCAACATAACGC
PCNA3_27		GACAAGCCGCTCAAAGAGCTGTCCATTGACACCTCTGCTAG
PCNA3_28		CATTTCCGCGCTGTAGGAAGAGCTAGCAGAGGTGTCAATGG
PCNA3_29		CCTACAGCGCGGAAATGTTTAAAGACGCGGTTAAAGGTCTC

PCNA3_30		CATCGTAGGCGCGCTGAAACCACGGAGACCTTTAACCGCGT
PCNA3_31		AGCGCGCCTACGATGGTTAGCTTCGGCGAGAACCTGCCGAT
PCNA3_32		GGAAACCGCCTCAACGTCGATTTTCATCGGCAGGTTCTCGC
PCNA3_33		CGTTGAGGCGGTTTCCGGTGGTCACATGATTTTCTGGATTG
PCNA3_34		ATGGTGGTGCAGGCGAGGCGCAATCCAGAAAATCATGTGAC
PCNA3_35		CGCCTGCACCACCATCATCACCACTGAGAATTCGAGCTCCG
PCNA3_36		GACGGAGCTCGAATTCTCAG

RadA

RadA_01		GAATTAATTCGGATCCATGAGCAACGAGGTGGA
RadA_02		TGGTTTTAATGTTTTTCTTCTGTTCCACCTCGTTGCTCAT
RadA_03		ACAGAAGAAAAACATTAAAACCATCAACGACCTGCCGGGC
RadA_04		CAGTTTGTTGATAACGGTTTGAGAGATGCCCGGCAGGTCG
RadA_05		CAAACCGTTATCAACAAACTGATCGAAGCGGGTTACTCTT
RadA_06		GCAACTGCGAGGGTTTCCAGAGAAGAGTAACCCGCTTCGA
RadA_07		AAACCCTCGCAGTTGCGTCTCCGCAGGACCTCTCTGTTGC
RadA_08		CGGTGGACAGCGGGATGCCTGCGGCAACAGAGAGGTCCTG
RadA_09		CCCGCTGTCCACCGCGCAGAAAATCATCAAAGAAGCCCGT
RadA_10		TGAAGCGGATGTCCAGCGCATCACGGGCTTCTTTGATGAT
RadA_11		CTGGACATCCGCTTCAAAACCGCGCTCGAAGTTAAAAAGG
RadA_12		TCTTTTTGACGTTCATACGTTCCTTTTTAACTTCGAGCGC
RadA_13		AACGTATGAACGTCAAAAAGATCTCCACCGGTTCTCAGGC
RadA_14		CCACCCGCCAGCAGACCGTCCAGGGCCTGAGAACCGGTGG
RadA_15		CTGCTGGCGGGTGGCATCGAAACCCGTACCATGACCGAAT
RadA_16		CCAGAACCAAATTCACCGAAAAATTCGGTCATGGTACGGG
RadA_17		CGGTGAATTTGGTTCTGGCAAAACCCAGCTGTGCCACCAG
RadA_18		GAGGCAGTTGAACGTTTACGCTGAGCTGGTGGCACAGCTG
RadA_19		GTAAACGTTCAACTGCCTCCGGAAAAAGGTGGTCTGTCTG
RadA_20		TATCGATGTATACCGCCTTACCAGACAGACCACCTTTTTC
RadA_21		TAAGGCGGTATACATCGATACCGAGGGTACTTTCCGTTGG
RadA_22		TCGCCATGTTTTCGATACGCTCCCAACGGAAAGTACCCTC
RadA_23		GTATCGAAAACATGGCGAAAGCGCTGGGTCTGGATATTGA
RadA_24		GTAGATGTTGTTCATAACGTTGTCAATATCCAGACCCAGC
RadA_25		CAACGTTATGAACAACATCTACTACATCCGTGCGATCAAC
RadA_26		ACGATTGCGATCTGGTGGTCGGTGTTGATCGCACGGATGT
RadA_27		CACCAGATCGCAATCGTTGACGACCTCCAGGAACTGGTTT
RadA_28		AGCTTGATAGACGGGTCTTTAGAAACCAGTTCCTGGAGGT
RadA_29		AGACCCGTCTATCAAGCTGATCGTGGTTGATTCCGTTACC
RadA_30		GATATTCGGCACGGAAGTGAGAGGTAACGGAATCAACCAC
RadA_31		ACTTCCGTGCCGAATATCCTGGTCGTGAAAACCTGGCGGT
RadA_32		TGTTTGTTCAGTTTCTGCTGACGAACCGCCAGGTTTTCAC
RadA_33		CAGCAGAAACTGAACAAACACCTGCACCAACTGACTCGTC
RadA_34		CGCGATGTCGTAAACTTCCGCCAGACGAGTCAGTTGGTGC
RadA_35		GAAGTTTACGACATCGCGGTTATCATTACCAACCAGGTTA
RadA_36		ACATATCCGGACGTGCCATAACCTGGTTGGTAATGATAAC

RadA_37		GCACGTCCGGATATGTTCTACGGTGACCCGACCGTTGCGG
RadA_38		AACGTGGTACAGGGTGTGACCGCCAACCGCAACGGTCGGG
RadA_39		ACACCCTGTACCACGTTCCGGGTATCCGTATCCAGCTGAA
RadA_40		CGACGGTTACCACGAGATTTCTTCAGCTGGATACGGATAC
RadA_41		CTCGTGGTAACCGTCGTATCGCGCGTGTTGTCGATGCGCC
RadA_42		ACAACTTCGCCTTCTGGGAGGTGCGGCGCATCGACAACAC
RadA_43		CCAGAAGGCGAAGTTGTTTTTGCGCTGACCGAGGAAGGTA
RadA_44		ATGGTGCTCTTCCGCGTCACGAATACCTTCCTCGGTCAGC
RadA_45		CGCGGAAGAGCACCATCATCACCACCACTGAGAATTCGAG
RadA_46		GACGGAGCTCGAATTCTCAGTGGTGG

Table S2. **Gene information and gene-specific primers used in RT-PCR.** F: forward; R: reverse.

Gene	Sso No.	Location	Length	Amplifi-cation region	Fragment length	Primer sequence (5′-3′)
Dpo1	SSO0552	486104 -488752	2649	1856-2386	531	F:CGTTATATGCGCCAGC TGTA R:CGTGTTGGGGAGTGTT CTTT
Dpo2	SSO1459	c1317435 -1315750	1686	573-1103	531	F:TGACCATTTCGTATGC CTCA R:CAGTTTCGGCAAAGGG ATTA
Dpo3	SSO0081	c66328 -64034	2295	1575-2040	466	F:TCCAGGGAAGGAGATC TGAA R:CAAACATCCACGCCTA CTCA
Dpo4	SSO2448	c2219975 -2221033	1059	189-602	414	F:CCGTTACTGCGACTAC GTGA R:TTGCTGCTGATATGGC AAAG
PCNA1	SSO0405	355009 -355788	780	285-746	462	F:AGCCAAGAGAAAAGAG GCAAT R:CCCCCTCCCTCCATAT TAAA
PCNA2	SSO1047	905678 -906418	741	113-612	500	F:GCGGAATTGATCCTTC AAGA R:ATTCGCAACGTATTCC ATCC
PCNA3	SSO0397	348688 -349437	750	318-748	431	F:GAGTGGGGCGAAAAGT ACAA R:ATAACCTTGGCGCTAT CCAA
RFC small	SSO0768	653092 -654084	993	147-639	493	F:ACCGGGTACCGGAAAA ACTA R:ATAAGCTGAGGCGGCT TGTA
RFC large	SSO0769	654081 -655298	1218	55-634	580	F:CAAGATGATGCGAAAA AGCA R:CGTATCCTTCCCCAAT TCCT
SSB	SSO2364	2157622 -2158068	447	68-736	309	F:AAGCAAGCGAAGCAAG ACA R:GGAATCCTCTTCCTCC TCCA
RadA	SSO0250	c216135 -217109	975	145-683	539	F:GTAGCAGCTGGCATTC CATT R:ACGGCCAGATTTTCTC TTCC

7S rRNA	SSOr01	C49815-50180	366	153-364	212	F:TCCGGAGGGAGAGAAAGTACC R:GCTAGGCGACCTCGGCACTAC

FIGURE S1. **RT-PCR analyses of Dpo1, Dpo2, Dpo3, and Dpo4 (agarose electrophoresis image)**. RT-PCR was performed as described in the Experimental Procedures section. Lanes 1, 13, 36, and 48 included molecular markers; lanes 2 to 11 were time points for 7S rRNA and Dpo1; lanes 14 to 23 were time points for 7S rRNA and Dpo2 RNA; lanes 25 to 34 were time points for 7S rRNA and Dpo3 RNA; lanes 37 to 46 were time points for 7S rRNA and Dpo4 RNA; lanes 12, 24, 35, 47 were controls with no template.

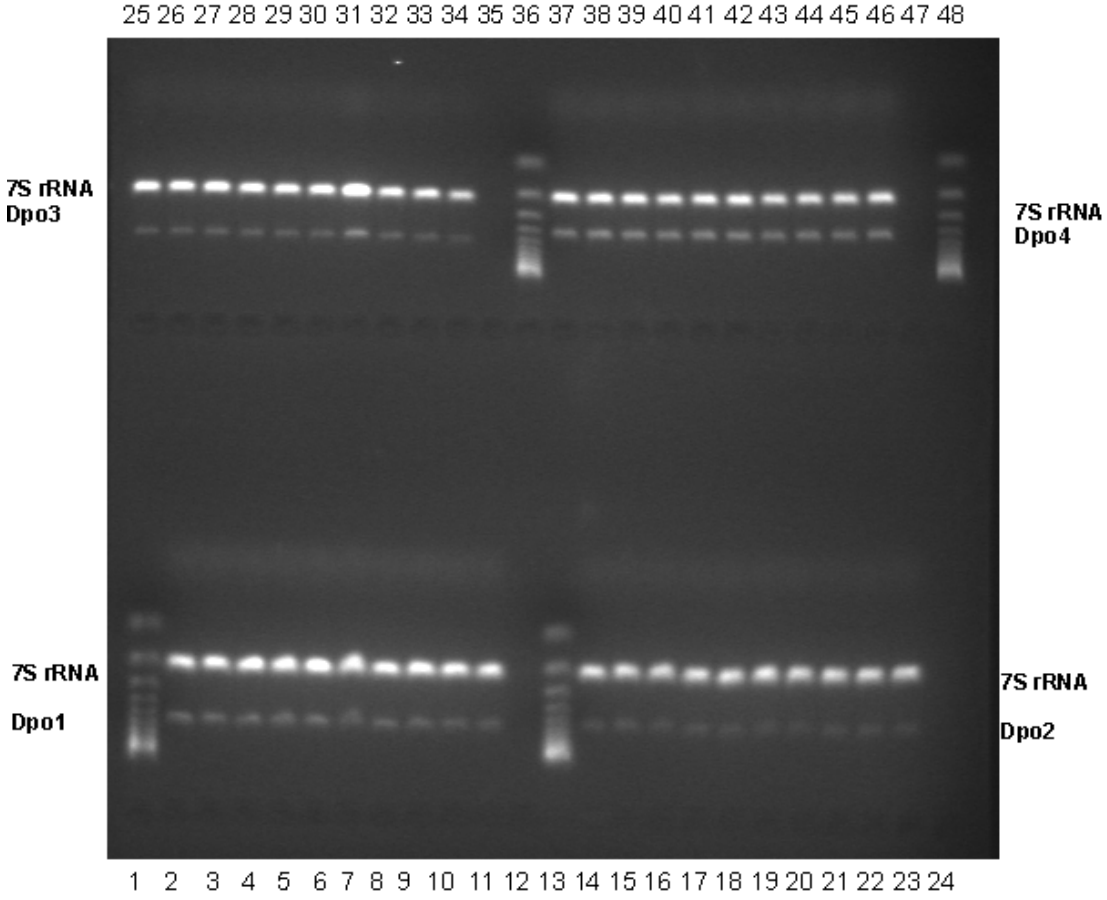
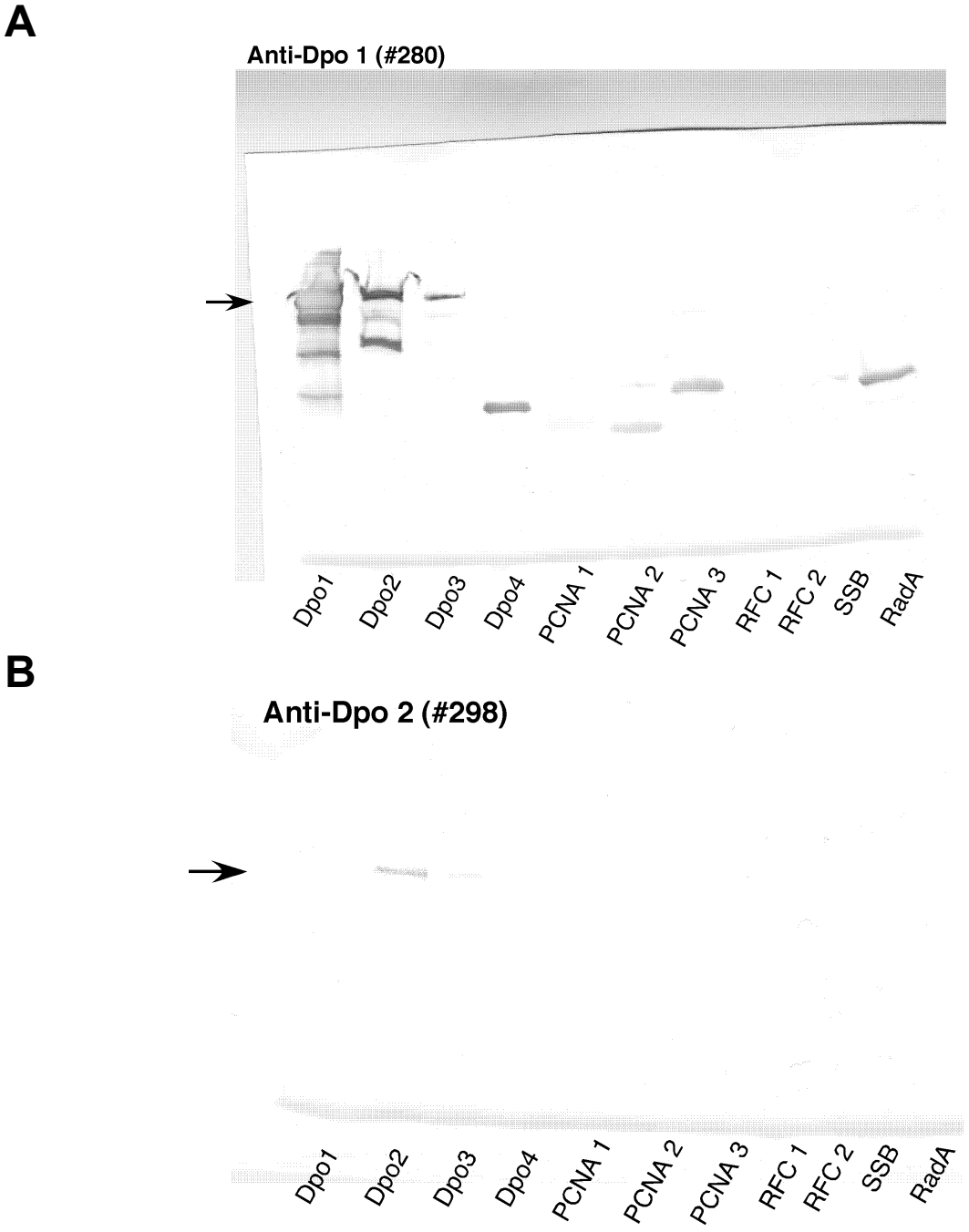
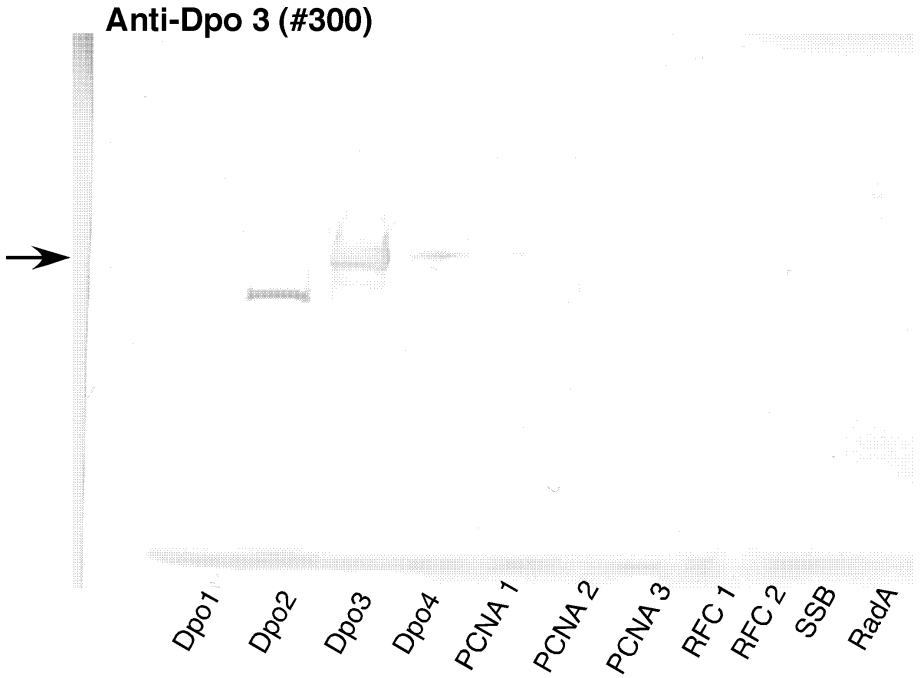


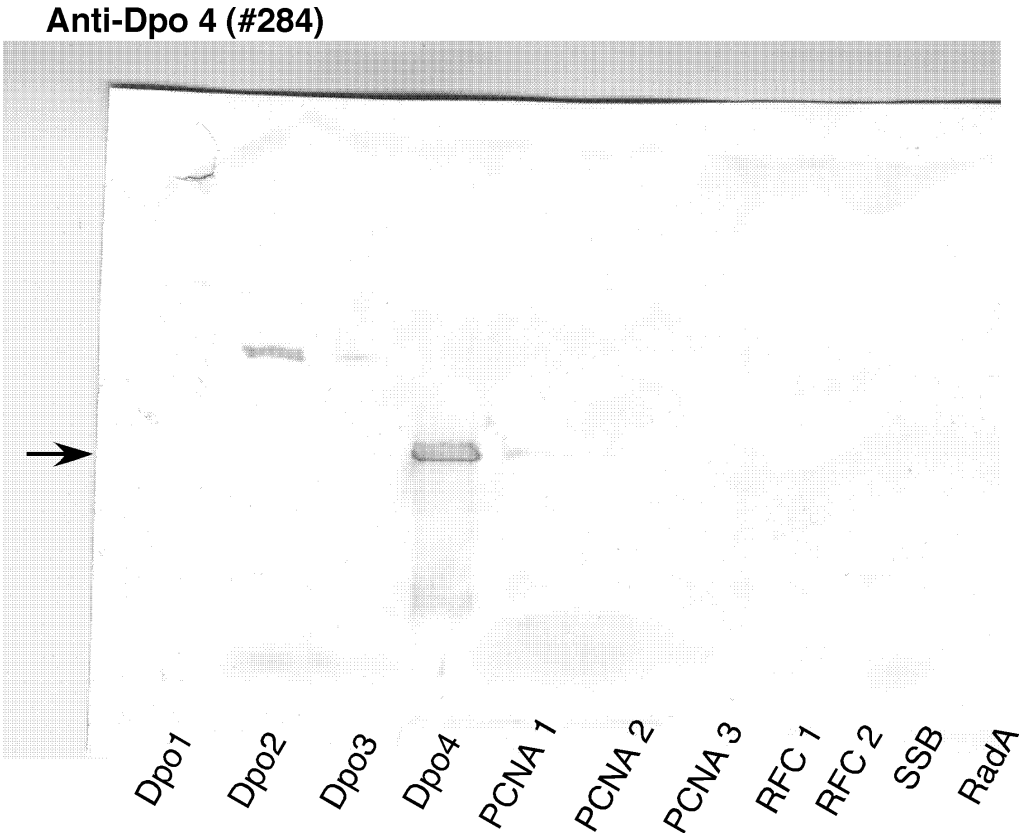
FIGURE S2. **Analysis of antibody cross-reactivity using immunoblotting.** See body of text for procedures. In each case 1.0 μg of the indicated protein was used in each lane and the antibody (labeled with the rabbit number, #) was used at a dilution of 1/400. The arrow in each part indicates the migration position of the antigen used to raise the antibody. These antisera were used in quantifying the amounts of the individual proteins during the growth of *Sulfolobus solfataricus*. *A*, anti-Dpo1; *B*, anti-Dpo2; *C*, anti-Dpo3; *D*, anti-Dpo4; *E*, anti-PCNA 1; *F*, anti-PCNA 2; *G*, anti-RFC (1 and 2—high and low M_r subunits); *H*, anti-SSB.



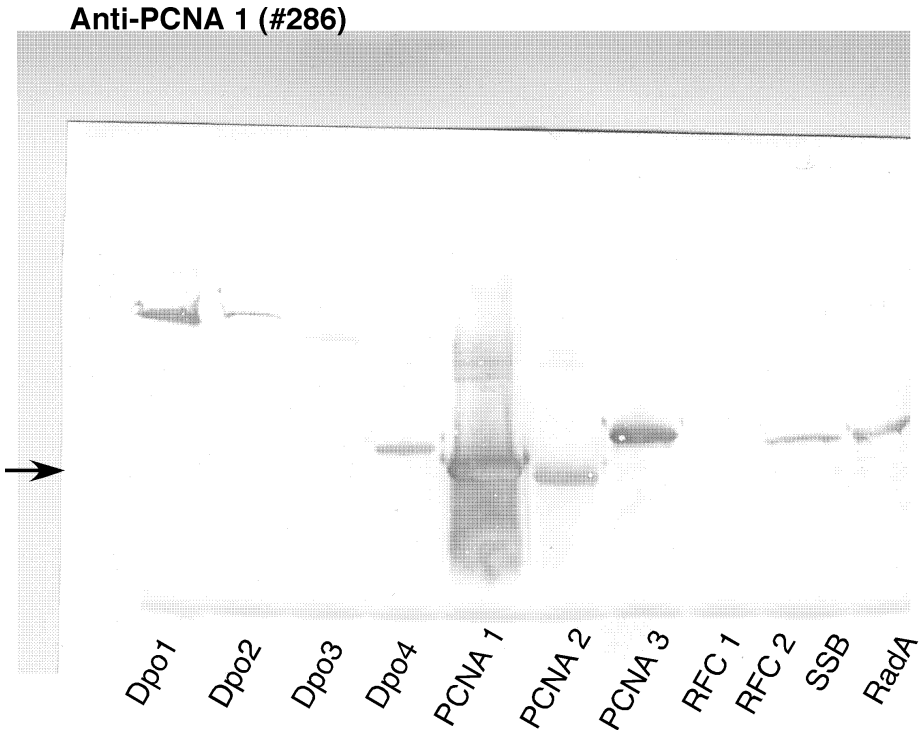
C


Anti-Dpo 3 (#300)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

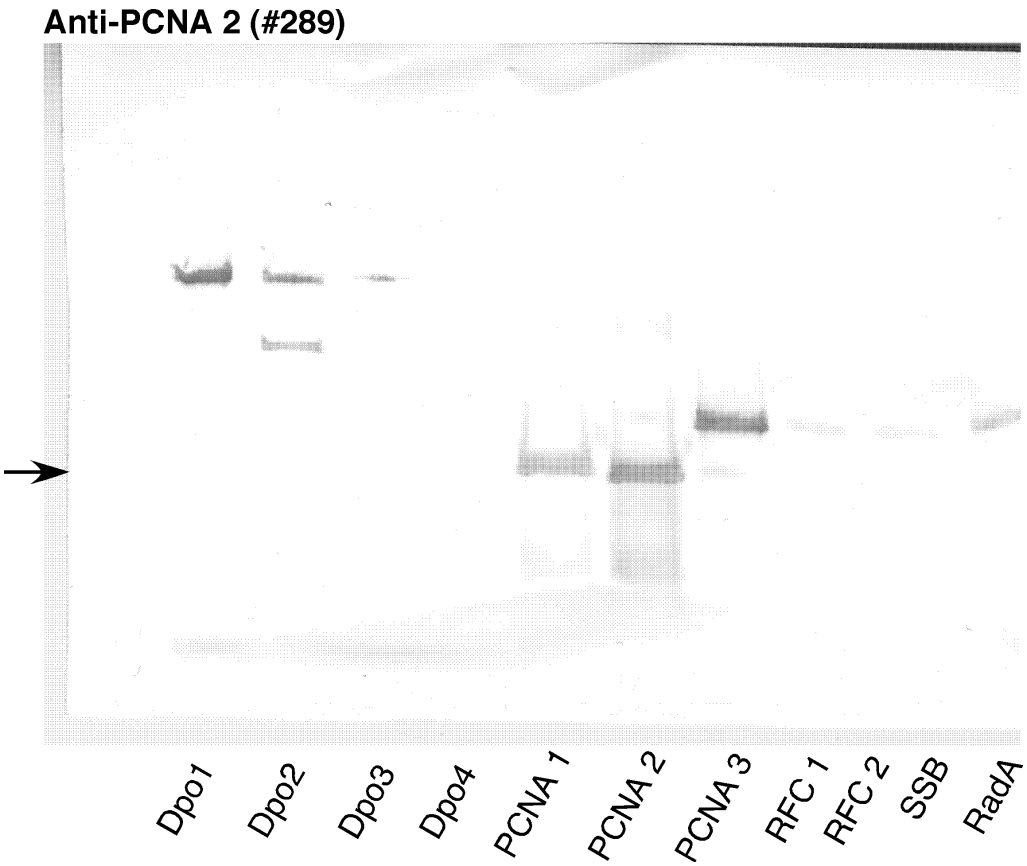
D


Anti-Dpo 4 (#284)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

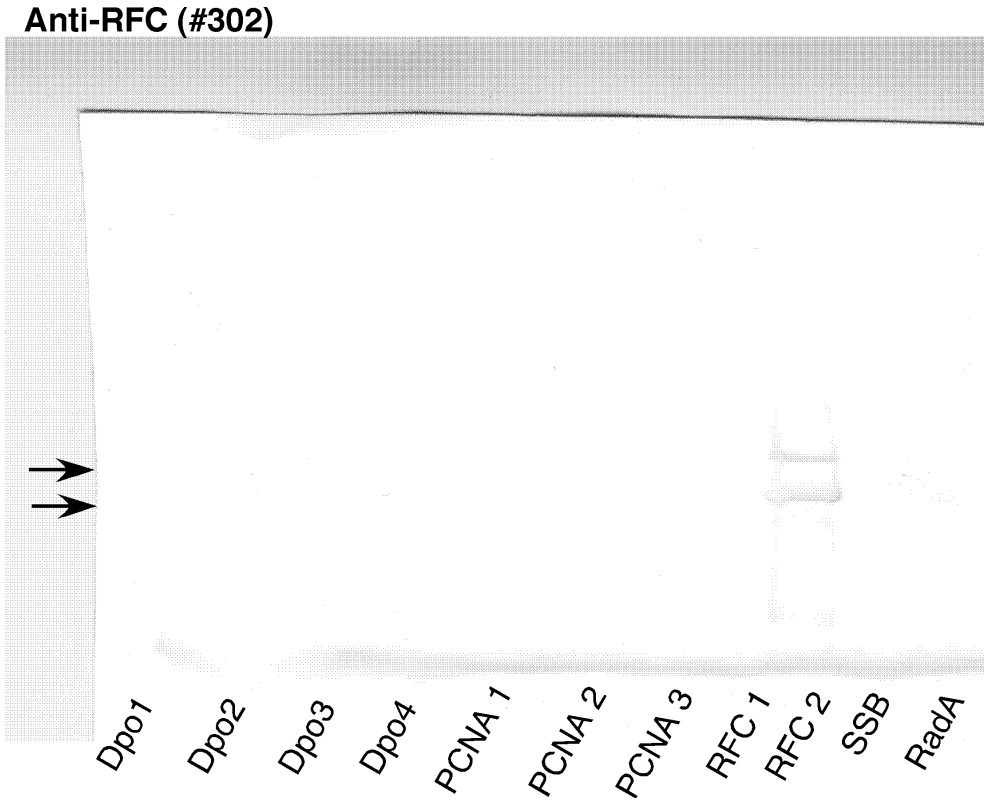
E


Anti-PCNA 1 (#286)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

F


Anti-PCNA 2 (#289)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

G


Anti-RFC (#302)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

H

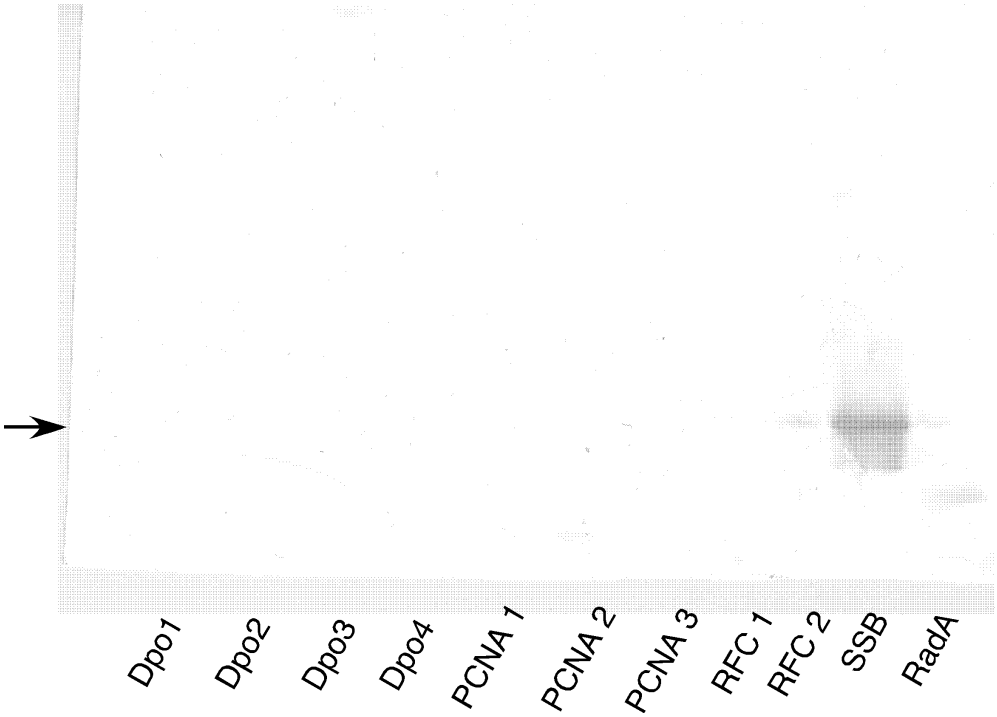

Anti-SSB (#304)
Dpo1
Dpo2
Dpo3
Dpo4
PCNA 1
PCNA 2
PCNA 3
RFC 1
RFC 2
SSB
RadA

FIGURE S3. **Representative quantitative immunoblots (Dpo1, Dpo3, PCNA1, and RFC)**. Quantitative immunoblot analyses were performed as described in the Experimental Procedures section. Lanes 1-5 included the indicated purified protein antigens (2-fold serial dilution from 6.4 ng to 400 pg) and lanes 6-14 contained protein extracts (5 μg protein) at individual time points.