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## LITERATURE CITED

1. **Adhya, S., S. Basu, P. Sarkar, and U. Maitra.** 1981. Location, function, and nucleotide sequence of a promoter for bacteriophage T3 RNA polymerase. *Proc. Natl. Acad. Sci. USA* **78**:147-151.
2. **Atanasiu, C., O. Byron, H. McMiken, S. S. Sturrock, and D. T. F. Dryden.** 2001. Characterisation of the structure of ocr, the gene 0.3 protein of bacteriophage T7. *Nucl. Acids Res.* **29**:3059-3068.
3. **Atanasiu, C., T.-J. Su, S. S. Sturrock and D. T. F. Dryden.** 2002. Interaction of the ocr gene 0.3 protein of bacteriophage T7 with EcoKI restriction/modification enzyme. *Nucl. Acids Res.* **30**:3936-3944.
4. **Bandwar, R. P., Y. Jia, N. Stano, and S. S. Patel.** 2002 Kinetic and thermodynamic basis of promoter strength: multiple steps of transcription initiation by T7 RNA polymerase are modulated by the promoter sequence. *Biochemistry* **41**:3586-3595.
5. **Beauchamp, B. B., and C. C. Richardson.** 1988. A unique deoxyguanosinetriphosphatase is responsible for the OptA1 phenotype of *Escherichia coli*. *Proc. Natl. Acad. Sci. USA* **85**:2563-2567.
6. **Beck, P. J., J. P. Condreay, and I. J. Molineux.** 1986. Expression of the unassembled capsid protein during infection of *Shigella sonnei* by bacteriophage T7 results in DNA damage that is repairable by bacteriophage T3, but not T7, DNA ligase. *J. Bacteriol.* **167**:251-256.

7. **Beck, P. J., S. Gonzalez, C. L. Ward, and I. J. Molineux.** 1989. Sequence of bacteriophage T3 DNA from gene 2.5 through gene 9. *J. Mol. Biol.* **210**:687-701.
8. **Beck, P. J., and I. J. Molineux.** 1991. Defective transcription of the right end of bacteriophage T7 DNA during an abortive infection of F plasmid-containing *Escherichia coli*. *J. Bacteriol.* **173**:947-954.
9. **Bedford, E., S. Tabor, and C. C. Richardson.** 1997. The thioredoxin binding domain of bacteriophage T7 DNA polymerase confers processivity on *Escherichia coli* DNA polymerase I. *Proc. Natl. Acad. Sci. USA.* **94**:479-484.
10. **Bernstein, J. A., and C. C. Richardson.** 1988. Purification of the 56-kDa component of the bacteriophage T7 primase/helicase and characterization of its nucleoside 5'-triphosphatase activities, *J. Biol. Chem.* **263**:14891-14899.
11. **Bernstein, J. A., and C. C. Richardson.** 1989. Characterization of the helicase and primase activities of the 63-kDa component of the bacteriophage T7 gene 4 protein. *J. Biol. Chem.* **264**:13066-13073.
12. **Blumberg, D. D., C.T. Mabie, and M.H. Malamy.** 1976. T7 protein synthesis in F-factor-containing cells: evidence for an episomally induced impairment of translation and its relation to an alteration in membrane permeability. *J. Virol.* **17**:94-105.
13. **Blumberg, D. D., and M. H. Malamy.** 1974. Evidence for the presence of nontranslated T7 late mRNA in infected F (PIF<sup>+</sup>) episome-containing cells. *J. Virol.* **13**:378-385.
14. **Bonner, G., E. M. Lafer, and R. Sousa.** 1994. Characterization of a set of T7 RNA polymerase active site mutants. *J. Biol. Chem.* **269**:25120-25128.

15. **Briat, J. F., G. Bollag, C. A. Kearney, I. Molineux, and M. J. Chamberlin.** 1987. Tau factor from *Escherichia coli* mediates accurate and efficient termination of transcription at the bacteriophage T3 early termination site *in vitro* . J. Mol. Biol. **198**:43-49.
16. **Briat, J.-F., and M.J. Chamberlin.** 1984. Identification and characterization of a new transcriptional termination factor from *Escherichia coli*. Proc. Natl. Acad. Sci. USA **81**:7373-7377.
17. **Bull, J. J., M. R. Badgett, and I. J. Molineux.** 2001. A general mechanism for viral resistance to suicide gene expression. J. Mol. Evol. **53**:47-54.
18. **Bull, J. J., M. R. Badgett, D. Rokyta, D., and I. J. Molineux.** 2003. Experimental evolution yields hundreds of mutations in a functional viral genome. J. Mol. Evol. **57**:241-248.
19. **Bull, J. J., C. Cunningham, I. J. Molineux, M. R. Badgett, and D. M. Hillis.** 1993. Experimental molecular evolution using bacteriophage T7. Evolution **47**:993-1007.
20. **Campbell, J. L., C. C. Richardson, and F. W. Studier.** 1978. Genetic recombination and complementation between bacteriophage T7 and cloned fragments of T7 DNA. Proc. Natl. Acad. Sci. USA **75**:2276-2280.
21. **Casjens, S., K. Eppler, R. Parr, and A. R. Poteete.** 1989. Nucleotide sequence of the bacteriophage P22 gene *l9* to *l3* region: identification of a new gene required for lysis. Virology **171**:588-598.
22. **Center, M. S., and C. C. Richardson.** 1970. An endonuclease induced after infection of *Escherichia coli* with bacteriophage T7. I. Purification and properties of the enzyme. J. Biol. Chem. **245**:6285-6291.

23. **Cerritelli, M. E., B. Cheng, A. H. Rosenberg, C. E. McPherson, F. P. Booy, and A. C. Steven.** 1997. Encapsidated conformation of bacteriophage T7 DNA. *Cell* **91**:271-280.
24. **Cerritelli, M. E., and F. W. Studier.** 1996. Assembly of T7 capsids from independently expressed and purified head protein and scaffolding protein. *J. Mol. Biol.* **258**:286-298.
25. **Cerritelli, M. E., and F. W. Studier.** 1996. Purification and characterization of T7 head-tail connectors expressed from the cloned gene. *J. Mol. Biol.* **258**:299-307.
26. **Cerritelli, M. E., B. L. Trus, C. S. Smith, N. Cheng, J. F. Conway, and A. C. Steven.** 2003. A second symmetry mismatch at the portal vertex of bacteriophage T7: 8-fold symmetry in the procapsid core. *J. Mol. Biol.* **327**:1-6.
27. **Chamberlin, M., J. McGrath, and L. Waskell.** 1970. New RNA polymerase from *Escherichia coli* infected with bacteriophage T7. *Nature (London)* **228**:227-231.
28. **Chamberlin, M. J., W. C. Nierman, J. Wiggs, and N. Neff.** 1979. A quantitative assay for bacterial DNA polymerases. *J. Biol. Chem.* **254**:10061-10069.
29. **Chang, C-Y., and I. J. Molineux.** Unpublished observations
30. **Cheetham, G. M. T., D. Jeruzalmi, and T. A. Steitz.** 1999. Structural basis for initiation of transcription from an RNA polymerase-promoter complex/ *Nature* 399:80-83.
31. **Cheetham, G. M. T., and T. A. Steitz.** 1999. Structure of a transcribing T7 RNA polymerase initiation complex. *Science* **286**:2305-2309.
32. **Cheng, X.** 2002. F exclusion of bacteriophage T7. Ph. D. dissertation. University of Texas at Austin.
33. **Cheng, X., X. Zhang, J. W. Pflugrath, and F. W. Studier.** 1994. The structure of bacteriophage T7 lysozyme, a zinc amidase and an inhibitor of T7 RNA polymerase. *Proc. Natl. Acad. Sci. USA.* **91**:4034-4038.

34. **Christiansen, J.** 1988. The 9S RNA precursor of *Escherichia coli* 5S RNA has three structural domains: implication for processing. Nucl. Acids Res. **16**:7457-7476.
35. **Christie, G. E., and I. J. Molineux.** Unpublished observations.
36. **Chung, Y-B., and D. C. Hinkle.** 1990. Bacteriophage T7 DNA packaging. I. Plasmids containing a T7 replication origin and the T7 concatemer junction are packaged into transducing particles during phage infection. J. Mol. Biol. **216**:911-926
37. **Chung, Y-B., and D. C. Hinkle.** 1990. Bacteriophage T7 DNA packaging. II. Analysis of the DNA sequences required for packaging using a plasmid transduction assay. J. Mol. Biol. **216**:927-938.
38. **Chung, Y-B., C. Nardone, and D. C. Hinkle.** 1990. Bacteriophage T7 DNA packaging. III A “hairpin” end formed on T7 DNA concatemers may be an intermediate in the processing reaction. J. Mol. Biol. **216**:939-948.
39. **Clarke, B. R., F. Esumeh, and I. S. Roberts.** 2000. Cloning, expression, and purification of the K5 capsular polysaccharide lyase (KflA) from coliphage K5A: evidence for two distinct K5 lyase enzymes. J. Bacteriol. **182**:3761-3766.
40. **Condit, R. C., and J. A. Steitz.** 1975. F factor-mediated inhibition of bacteriophage T7 growth: analysis of T7 RNA and protein synthesis *in vivo* and *in vitro* using male and female *Escherichia coli*. J. Mol. Biol. **98**:31-43.
41. **Condit, R. C.** 1975. F factor-mediated inhibition of bacteriophage T7 growth: increased membrane permeability and decreased ATP levels following T7 infection of male *Escherichia coli*. J. Mol. Biol. **98**:45-56.

42. **Condreay, J. P., and I. J. Molineux.** 1989. Synthesis of the capsid protein inhibits development of bacteriophage T3 mutants that abortively infect F plasmid-containing strains. *J. Mol. Biol.* **207**:543-554.
43. **Condreay, J. P., S. E. Wright, and I. J. Molineux.** 1989. Nucleotide sequence and complementation studies of the gene *10* region of bacteriophage T3. *J. Mol. Biol.* **207**:555-561.
44. **Condron B. G., J. F. Atkins, and R. F. Gesteland RF.** 1991. Frameshifting in gene *10* of bacteriophage T7. *J. Bacteriol.* **173**:6998-7003.
45. **Condron B. G., R. F. Gesteland, and J. F. Atkins.** 1991. An analysis of sequences stimulating frameshifting in the decoding of gene *10* of bacteriophage T7. *Nucl. Acids Res.* **19**:5607-5612.
46. **Cram, H. K., D. Cram, and R. Skurray.** 1984. F plasmid *pif* region: Tn1725 mutagenesis and polypeptide analysis. *Gene* **32**:251-254.
47. **Cram, D., A. Ray, and R. Skurray.** 1984. Molecular analysis of F plasmid *pif* region specifying abortive infection of T7. *Mol. Gen. Genet.* **197**:137-142.
48. **Cunningham, C. W., K. Jeng, J. Husti , M. Badgett, I. J. Molineux, D. M. Hillis, and J. J. Bull. J. J.** 1997. Parallel molecular evolution of deletions and nonsense mutations in bacteriophage T7. *J. Mol. Evol.* **14**:113-116.
49. **Dausse, J-P., A. Sentenac, and P. Fromageot.** 1976. Interaction of RNA polymerase from *Escherichia coli* with DNA. *Eur. J. Biochem.* **65**:387-393.
50. **Déclais, A., J. M.Fogg, A. D. J. Freeman, F. Coste, J. M. Hadden, S. E. V. Phillips, and D. M. J. Lilley.** 2003. The complex between a four-way DNA junction and T7 endonuclease I. *EMBO J.* **22**:1398-1409.

51. **De Massy, B., R. A. Weisberg, and F. W. Studier.** 1987. Gene 3 endonuclease of bacteriophage T7 resolves conformationally branched structures in double-stranded DNA. *J. Mol. Biol.* **193**:359-376.
52. **Demchick, P., and A. L. Koch.** 1996. The permeability of the wall fabric of *Escherichia coli* and *Bacillus subtilis*. *J. Bacteriol.* **178**:768-773.
53. **Demerec, M., and U. Fano.** 1945. Bacteriophage-resistant mutants in *Escherichia coli*. *Genetics* **30**:119-136.
54. **De Wyngaert, M. A., and D. C. Hinkle.** 1979. Bacterial mutants affecting phage T7 replication produce RNA polymerase resistant to inhibition by the T7 gene 2 protein. *J. Biol. Chem.* **254**:11247-11253.
55. **De Wyngaert, M. A., and D. C. Hinkle.** 1980. Characterization of the defects in bacteriophage T7 DNA synthesis during growth in the *Escherichia coli* mutant *tsnB*. *J. Virol.* **33**:780-788.
56. **Dobbins, A. T., M. George Jr., D. J. Basham, M. E. Ford, J. M. Houtz, M. L. Pedulla, J. G. Lawrence, G. F. Hatfull, and R. W. Hendrix.** 2004. Complete genomic sequence of the virulent *Salmonella* bacteriophage SP6. *J. Bacteriol.* In press.
57. **Donate, L.E., L. Herranz, J. P. Secilla, J. M. Carazo, H. Fujisawa, and J. L. Carrascosa.** 1988. Bacteriophage T3 connector: three-dimensional structure and comparison with other viral head-tail connecting regions. *J. Mol. Biol.* **201**:91-100.
58. **Doublié, S., S. Tabor, A. M. Long, C. C. Richardson, and T. Ellenberger.** (1998) Crystal structure of a bacteriophage T7 DNA replication complex at 2.2Å resolution. *Nature* **391**:251-258.

59. **Dressler, D. J. Wolfson, and M. Magazin.** 1972. Initiation and reinitiation of DNA synthesis during replication of bacteriophage T7. *Proc. Natl. Acad. Sci. USA* **69**:998-1002.
60. **Dunn, J.J., and F.W. Studier.** 1973. T7 early RNAs and *Escherichia coli* ribosomal RNAs are cut from large precursor RNAs *in vivo* by ribonuclease III. *Proc. Natl. Acad. Sci. USA* **70**:3296-3300.
61. **Dunn, J.J., and F.W. Studier.** 1975. Effect of RNase III cleavage on translation of bacteriophage T7 messenger RNAs. *J. Mol. Biol.* **99**:487-499.
62. **Dunn, J. J., and F. W. Studier.** 1983. Complete nucleotide sequence of bacteriophage T7 DNA and the locations of genetic elements. *J. Mol. Biol.* **166**:477-535.
63. **Ederth, J., L.A.Isaksson, and F.Abdulkarim.** 2002. Origin-specific reduction of ColE1 plasmid copy number due to mutations in a distinct region of the *Escherichia coli* RNA polymerase. *Mol. Genet. Genomics* **267**:587–592.
64. **Egelman, H. H., X. Yu, R. Wild, M. M. Hingorami, and S. S. Patel.** 1995. Bacteriophage T7 DNA helicase/primase proteins form rings around single-stranded DNA that suggests a structure for hexameric helicases. *Proc. Natl. Acad. Sci. USA* **92**:3869-3873.
65. **Endy, D. You, L., Yin, J, and Molineux, I. J.** 2000. Computation, prediction, and experimental tests of fitness for bacteriophage T7 mutants with permuted genomes. *Proc. Natl. Acad. Sci USA* **97**:5375-5380.
66. **Feng C., and J. Lu.** 2002. Genomic sequence and evolution of marine cyanophage P60: a new insight on lytic and lysogenic Phages. *Appl. Env. Microbiol.* **68**:2589-2594.



67. **Frick, D. N., K. Baradaran, and C. C. Richardson.** 1998. An N-terminal fragment of the gene 4 helicase/primase of bacteriophage T7 retains primase activity in the absence of helicase activity. *Proc. Natl. Acad. Sci USA* **95**:7957-7962.
68. **Frick, D. N., and C. C. Richardson.** 1999. Interaction of the bacteriophage T7 gene 4 primase with its template recognition site. *J. Biol. Chem.* **274**:35889-35898.
69. **Frick, D. N., and C. C. Richardson.** 2001. DNA primases. *Annu Rev. Biochem.* **70**:39-80.
70. **Frick, D. N., S. Kumar, and C. C. Richardson.** 1999. Interaction of ribonucleoside triphosphates with the gene 4 primase of bacteriophage T7. *J. Biol. Chem.* **274**:35899-35907.
71. **Fujisawa, H., M. Kimura, and C. Hashimoto.** 1990. *In vitro* cleavage of the concatemer joint of bacteriophage T3. *Virology* **174**:26-34.
72. **Fujisawa, H., J. Miyazaki, and T. Minagawa.** 1978. *In vitro* packaging of phage T3 DNA. *Virology* **87**:394-400.
73. **Fujisawa, H., and M. Morita.** 1997. Phage DNA Packaging. *Genes to Cells* **2**:537-545.
74. **Fujisawa, H., H. Shibata, and H. Kato.** 1991. Analysis of interactions among factors involved in the bacteriophage T3 DNA packaging reaction in a defined *in vitro* system. *Virology* **185**:788-794.
75. **Fujisawa, H., M. Yamagishi, and T. Minagawa.** 1980. *In vitro* formation of the concatemeric DNA of bacteriophage T3 and its biological activity in the *in vitro* packaging reaction. *Virology* **101**:327-334.
76. **Fuller, C. W., and C. C. Richardson.** 1985. Initiation of DNA replication at the primary origin of bacteriophage T7 by purified proteins. Site and direction of initial DNA synthesis. *J. Biol. Chem.* **260**:3185-3196.

77. **Fuller, C. W., and C. C. Richardson.** 1985. Initiation of DNA replication at the primary origin of bacteriophage T7 by purified proteins. Initiation of bidirectional synthesis. *J. Biol. Chem.* **260**:3197-3206.
78. **Garcia, E., J. M. Elliott, E. Ramanculov, P. S. G. Chain, M. C. Chu, and I. J. Molineux.** The genome sequence of *Yersinia pestis* bacteriophage  $\phi$ A1122 reveals an intimate history with the coliphage T3 and T7 genomes. *J. Bacteriol.* **185**:5248-5262.
79. **García, L. R., and I. J. Molineux.** 1995. Rate of translocation of bacteriophage T7 DNA across the membranes of *Escherichia coli*. *J. Bacteriol.* **177**:4066-4076.
80. **García, L. R., and I. J. Molineux.** 1995. Incomplete entry of bacteriophage T7 DNA into F plasmid-containing *Escherichia coli* strains. *J. Bacteriol.* **177**:4077-4083.
81. **García, L. R., and Molineux, I. J.** 1996. Transcription-independent DNA translocation of bacteriophage T7 DNA into *Escherichia coli*. *J. Bacteriol.* **178**:6921-6929.
82. **García, L. R., and Molineux, I. J.** 1999. Translocation and cleavage of bacteriophage T7 DNA by the type I restriction enzyme *EcoKI* *in vivo*. *Proc. Natl. Acad. Sci USA* **96**:12430-12435.
83. **Gold, L., D. Pribnow, T. Schneider, S. Shinedling, B.S. Singer, and G. Stormo.** 1981. Translational initiation in prokaryotes. *Annu. Rev. Microbiol.* **35**:365-403.
84. **Gomez, B., and L. Nualart.** 1977. Requirement of the bacteriophage T7 *0.7* gene for phage growth in the presence of the Col Ib factor. *J. Gen. Virol.* **35**:99-106.
85. **Grippo, P., and C. C. Richardson.** 1971. Deoxyribonucleic acid polymerase of bacteriophage T7. *J. Biol. Chem.* **246**:6867-6873.

86. **Hadden, J. M., M. A. Convery, A-C. Déclais, D. M. J. Lilley, and S. E. V. Phillips.** 2001. Crystal structure of the Holliday junction resolving enzyme T7 endonuclease I. *Nature Struct. Biol.* **8**:62-67.
87. **Haggård-Ljungquist, E., Halling, C., and Calendar, R.** 1992. DNA sequences of the tail fiber genes of bacteriophage P2: evidence for horizontal transfer of tail fiber genes among unrelated bacteriophages. *J Bacteriol* **174**:1462-1477.
88. **Hamada, K., H. Fujisawa, and T. Minagawa.** 1986. A defined *in vitro* system for packaging of bacteriophage T3 DNA. *Virology* **151**:119-123.
89. **Hamada, K., H. Fujisawa, and T. Minagawa.** 1986. Overproduction and purification of the products of T3 genes *I8* and *I9*, two genes involved in DNA packaging. *Virology* **151**:110-118.
90. **Hardies, S. C., A. M. Comeau, P. Serwer, and C. A. Suttle.** 2003. The complete sequence of marine bacteriophage VpV262 infecting *Vibrio parahaemolyticus* indicates that an ancestral component of a T7 viral supergroup is widespread in the marine environment. *Virology* **310**:359-371.
91. **Hartvig, L., and J. Christiansen.** 2000. Intrinsic termination of T7 RNA polymerase mediated by either RNA or DNA. *EMBO J.* **15**:4767-4774.
92. **Hashimoto, C., and H. Fujisawa.** 1992. DNA sequences necessary for packaging bacteriophage T3 DNA. *Virology* **187**:788-795.
93. **Hashimoto, C., and H. Fujisawa.** 1992. Transcription dependence of DNA packaging of bacteriophages T3 and T7. *Virology* **191**:246-250.
94. **Hausmann, R.** 1968. Sedimentation analysis of phage T7-directed DNA synthesized in the presence of a dominant lethal gene. *Biochem. Biophys. Res. Commun.* **31**:609-615.

95. **Hausmann, R.** 1988. The T7 Group. In "The Bacteriophages" Vol 1. pp259-289. In *The Bacteriophages* ed. R. Calendar. Plenum Press, New York.
96. **Hausmann, R., and B. Gomez.** 1968. Bacteriophage T3- and T7-directed deoxyribonucleases. *J. Virol.* **2**:265-266.
97. **Hesselbach, B.A., and D. Nakada.** 1975. Inactive complex formation between *E. coli* RNA polymerase and inhibitor protein purified from T7 phage infected cells. *Nature* **258**:354-357.
98. **Hesselbach, B.A., and D. Nakada.** 1977. "Host shut off" function of bacteriophage T7: involvement of T7 gene 2 and gene 0.7 in the inactivation of *Escherichia coli* RNA polymerase. *J. Virol.* **24**:736-745.
99. **Hesselbach, B.A., and D. Nakada.** 1977. I protein: bacteriophage-coded inhibitor of *Escherichia coli* RNA polymerase. *J. Virol.* **24**:746-760.
100. **Hillis, D. M., J. J. Bull, M. E. White, M. R. Badgett, and I. J. Molineux.** 1992. Experimental phylogenetics: generation of a known phylogeny. *Science* **255**:589-592.
101. **Hingorani, M. M., M. T. Washington, K. C. Moore, and S. S. Patel.** 1997. The dTTPase mechanism of T7 DNA helicase resembles the binding change mechanism of the F<sub>1</sub>-ATPase. *Proc. Natl. Acad. Sci. USA.* **94**:5012-5017.
102. **Hirsch-Kauffmann, M., P. Herrlich, H. Ponta, and M. Schweiger-M.** 1975. Helper function of T7 protein kinase in virus propagation. *Nature* **255**:508-510.
103. **Hollis, T., J. M. Stattel, D. S. Walther, C. C. Richardson, and T. Ellenberger.** 2001. Structure of the gene 2.5 protein, a single-stranded DNA binding protein encoded by bacteriophage T7. *Proc. Natl. Acad. Sci. USA* **98**:9557-8562.

104. **Huang, J., J. Villemain, R. Padilla, and R. Sousa.** 1999. Mechanisms by which T7 lysozyme specifically regulates T7 RNA polymerase during different phases of transcription. *J. Mol. Biol.* **293**:457-475.
105. **Huber, H. E., B. B. Beauchamp, and C. C. Richardson.** 1988. *Escherichia coli* dGTP triphosphohydrolase is inhibited by gene *I.2* protein of bacteriophage T7. *J. Biol. Chem.* **263**:13549-13556.
106. **Huber, H. E., M. Russel, P. Model, and C. C. Richardson.** 1986. Interaction of mutant thioredoxins of *Escherichia coli* with the gene 5 protein of phage T7. The redox capacity of thioredoxin is not required for stimulation of DNA polymerase activity. *J. Biol. Chem.* **261**:15006-15012.
107. **Huber, H. E., S. Tabor, and C. C. Richardson.** 1987. *Escherichia coli* thioredoxin stabilizes complexes of bacteriophage T7 DNA polymerase and primed templates. *J. Biol. Chem.* **262**:16224-16232.
108. **Hughes, V., and G. G. Meynell.** 1973. The contribution of plasmid and phage genes to plasmid-mediated interference with phage growth. *Genet. Res.* **30**:179-185.
109. **Ikeda, R. A., and P. A. Bailey.** 1992. Inhibition of T7 RNA polymerase by T7 lysozyme *in vitro*. *J. Biol. Chem.* **267**:20153-20158.
110. **Ikeda, R. A., and C. C. Richardson.** 1986. Interactions of the RNA polymerase of bacteriophage T7 with its promoter during binding and initiation of transcription. *Proc. Natl. Acad. Sci. USA* **83**:3614-3618.
111. **Imburgio, D., M. Rong, K. Ma, and W. T. McAllister.** 2000. Studies of promoter recognition and start site selection by T7 RNA polymerase using a comprehensive collection of promoter variants. *Biochemistry* **39**:10419-10430.

112. **Inouye, M., N. Arnheim, and R. Sternglanz.** 1973. Bacteriophage T7 lysozyme is an N-acetylmuramyl-L-alanine amidase. *J. Biol. Chem.* **248**:7247-7252.
113. **Jeng, S. T., J. F. Gardner, and R. I. Gumport.** 1990. Transcription termination by bacteriophage T7 RNA polymerase at rho-independent terminators. *J. Biol. Chem.* **265**:3823-3830.
114. **Jeruzalmi, D., and T. A. Steitz.** 1998. Structure of T7 RNA polymerase complexed to the transcriptional inhibitor T7 lysozyme. *EMBO J.* **14**:4101-4113.
115. **Kato, H., H. Fujisawa, and T. Minagawa.** 1986. Subunit arrangement of the tail fiber of bacteriophage T3. *Virology* **153**:80-86.
116. **Kato, M., T. Ito, G. Wagner, C. C. Richardson, and T. Ellenberger.** 2003. Modular architecture of the bacteriophage T7 primase couples RNA primer synthesis to DNA synthesis. *Mol. Cell* **11**:1349-1360.
117. **Kelly, T. J., Jr., and C. A. Thomas, Jr.** 1969. An intermediate in the replication of bacteriophage T7 DNA molecules. *J. Mol. Biol.* **44**:459-475.
118. **Kemp, P., M. Gupta, and I. J. Molineux.** 2004. Bacteriophage T7 DNA ejection into cells is initiated by an enzyme-like process. *Mol. Microbiol.* In press.
119. **Kemp, P., and I. J. Molineux.** Unpublished observations.
120. **Kemp, P., Chang, C-Y., L. R. García, and I. J. Molineux.** Unpublished observations.
121. **Kennedy, M., M. Chandler, and D. Lane.** 1988. Mapping and regulation of the *pifC* promoter of the F plasmid. *Biochim. Biophys. Acta* **950**:75-80.
122. **Kerr, C., and P.D. Sadowski.** 1975. The involvement of genes 3, 4, 5 and 6 in genetic recombination of bacteriophage T7. *Virology* **65**:281-285.

123. **Kiefer, M., N. Neff, and M.J. Chamberlin.** 1977. Transcriptional termination at the end of the early region of bacteriophages T3 and T7 is not affected by polarity suppressors. *J. Virol.* **22**:548-552.
124. **Kieleczawa, J., and I. J. Molineux.** Unpublished observation
125. **Kim, D-E., M. Narayan, and S. S. Patel.** 2002. T7 DNA helicase: a molecular motor that processively and unidirectionally translocates along single-stranded DNA. *J. Mol. Biol.* **321**:807-819.
126. **Kim, S-H., and Y-B. Chung.** 1996. Isolation of a mutant bacteriophage T7 deleted in nonessential genetic elements, gene *19.5* and *m*. *Virology* **216**:20-25.
127. **Kim, J-S., S-H. Kim, and Y-B. Chung.** 1997. Defects in concatemer processing of bacteriophage T7 DNA deleted in the m-hairpin region. *Virology* **236**:37-46.
128. **Kim, Y. T., and C. C. Richardson.** 1993. Bacteriophage T7 gene 2.5 protein: an essential protein for DNA replication. *Proc. Natl. Acad. Sci. USA* **90**:10173-10177.
129. **Kim, Y. T., and C. C. Richardson.** 1994. Acidic carboxyl-terminal domain of gene 2.5 protein of bacteriophage T7 is essential for protein-protein interactions. *J. Biol. Chem.* **269**:5270-5278.
130. **Kim, Y. T., S. Tabor, J. E. Churchich, and C. C. Richardson.** 1992. Interactions of gene 2.5 protein and DNA polymerase of bacteriophage T7. *J. Biol. Chem.* **267**:15032-15040.
131. **Klement, J. F., M. B. Moorefield, E. Jorgensen, J. E. Brown, S. Risman, and W. T. McAllister.** 1990. Discrimination between bacteriophage T3 and T7 promoters by the T3 and T7 RNA polymerases depends primarily upon a three base-pair region located 10 to 12 base-pairs upstream from the start site. *J. Mol. Biol.* **215**:21-29.

132. **Kocsis, E., M. E. Cerritelli, B. L. Trus, N. Cheng, and A. C. Steven.** 1995. Improved methods for determination of rotational symmetries in macromolecules. *Ultramicroscopy* **60**:219-228.
133. **Kong, D., N. G. Nossal, and C. C. Richardson.** 1997. Role of the bacteriophage T7 and T4 single-stranded DNA-binding proteins in the formation of joint molecules and DNA helicase-catalyzed polar branch migration. *J. Biol. Chem.* **272**:8380-8387.
134. **Kong, D., and C. C. Richardson.** 1996. Single-stranded DNA binding protein and DNA helicase of bacteriophage T7 mediate homologous DNA strand exchange. *EMBO J.* **15**:2010-2019.
135. **Kovalayova, I. V., and A. M. Kropinski.** 2003. The complete genome sequence of lytic bacteriophage gh-1 infecting *Pseudomonas putida* - evidence for close relationship to the T7 group. *Virology* **311**:305-315.
136. **Kreuzer, K. N., and N. R. Cozzarelli.** 1979. *Escherichia coli* mutants thymosensitive for deoxyribonucleic acid gyrase subunit A: effects on deoxyribonucleic acid replication, transcription and bacteriophage growth. *J. Bacteriol.* **140**:424-435.
137. **Krüger, D. H., and C. Schroeder.** 1981. Bacteriophage T3 and bacteriophage T7 virus-host cell interactions. *Microbiol. Rev.* **45**:9-51.
138. **Kuhn, A. and E. Kellenberger.** 1985. Productive phage infection in *Escherichia coli* with reduced internal levels of the major cations. *J. Bacteriol.* **163**:906-912.
139. **Kumar, A., and S. S. Patel.** 1997. Inhibition of T7 RNA polymerase transcription initiation and transition from initiation to elongation are inhibited by T7 lysozyme via a ternary complex with RNA polymerase and promoter DNA. *Biochemistry* **36**:13954-13962.



140. **Kwiatkowski, B., B. Boschek, H. Thiele, and S. Stirm.** 1982. Endo-*N*-acetylneuraminidase associated with bacteriophage particles. *J. Virol.* **43**:697-704.
141. **Kwiatkowski, B., B. Boschek, H. Thiele H, and S. Stirm.** 1983. Substrate specificity of two bacteriophage-associated endo-*N*-acetylneuraminidases. *J. Virol.* **45**:367-374.
142. **Langman, L., and V. Paetkau.** 1978. Purification and structures of recombining and replicating bacteriophage T7 DNA. *J. Virol.* **25**:562-569.
143. **Langman, L., V. Paetkau, D. Scraba, R.C. Miller, Jr., G. S. Roeder, and P. D. Sadowski.** 1978. The structure and maturation of intermediates in bacteriophage T7 DNA replication. *Can. J. Biochem.* **56**:508-516.
144. **Lavigne, R., M. V. Bourkaltseva, J., Robben, N. N., Sykilinda, L. P. Kurochkina, B. Grymonprez, B. Jonckx, V. N. Krylov, V. V. Mesyanzhinov, and G. Volckaert.** 2003. The genome of bacteriophage  $\phi$ KMV: a T7-like lytic phage infecting *Pseudomonas aeruginosa*. *Virology* **312**:49-59.
145. **Lazarus, A. S., and J. B. Gunnison.** 1947. The action of Pasteurella pestis bacteriophage on strains of Pasteurella, Salmonella, and Shigella. *J. Bacteriol.* **53**:705-714.
146. **LeClerc, J. E., and C.C. Richardson.** 1979. Bacteriophage T7 DNA replication in vitro. XVI. Gene 2 protein of bacteriophage T7: purification and requirement for packaging of T7 DNA in vitro. *Proc. Natl. Acad. Sci. USA* **76**:4852-4856.
147. **Lee, D., and P. D. Sadowski.** 1981. Genetic recombination of bacteriophage T7 *in vivo* studied by use of a simple physical assay. *J. Virol.* **40**:839-847.
148. **Lee, J., P. D. Chastain II, J. D. Griffith, and C. C. Richardson.** 2002. Lagging strand synthesis in coordinated DNA synthesis by T7 replication proteins. *J. Mol. Biol.* **316**:19-34.

149. **Lee, J., P. D. Chastain II, T. Kusakabe, J. D. Griffith, and C. C. Richardson.** 1998. Coordinated leading and lagging strand synthesis on a mini-circular template. *Mol. Cell* **1**:1001-1010.
150. **Lee, M., and R. C. Miller, Jr.** 1974. T7 exonuclease (gene 6) is necessary for molecular recombination of bacteriophage T7. *J. Virol.* **14**:1040-1048.
151. **Lee, M., R. C. Miller, Jr., D. Scraba, and V. Paetkau.** 1976. The essential role of bacteriophage endonuclease (gene 3) in molecular recombination. *J. Mol. Biol.* **104**:883-888.
152. **Lee, S. S., and K. C. Kang.** 1992. A two-base-pair substitution in T7 promoter by SP6 promoter-specific base pairs alone abolishes T7 promoter activity but reveals SP6 promoter activity. *Biochem. Int.* **26**:1-5.
153. **Lin, L.** 1992. Study of bacteriophage T7 gene 5.9 and gene 5.5. Ph. D. Dissertation SUNY, Stonybrook, New York.
154. **Liu, Q., and C. C. Richardson.** 1993. Gene 5.5 protein of bacteriophage T7 inhibits the nucleoid protein H-NS of *Escherichia coli*. *Proc. Natl. Acad. Sci. USA* **90**:1761-1765.
155. **Long, G. S., J. M. Bryant, P. W. Taylor, and J. P. Luzio.** 1995. Complete nucleotide sequence of the gene encoding bacteriophage E endosialidase: implications for K1E endosialidase structure and function. *Biochem. J.* **309**:543-550.
156. **Lopez, P. J., J. Guillerez, R. Sousa, and M. Dreyfus.** The low processivity of T7 RNA polymerase over the initially transcribed region can limit productive initiation *in vivo*. *J. Mol. Biol.* **269**:41-51.
157. **Lu, M., Q. Guo, F. W. Studier, and N. R. Kallenbach.** 1991. Resolution of branched DNA substrates by T7 endonuclease I and its inhibition. *J. Biol. Chem.* **266**:2531-2536.

158. **Lyakhov, D. L., B. He, X. Zhang, F. W. Studier, J. J. Dunn, and W. T. McAllister.** 1997. Mutant bacteriophage T7 RNA polymerases with altered termination properties. *J. Mol. Biol.* **269**:28-40.
159. **Lyakhov, D. L., B. He, X. Zhang, F. W. Studier, J. J. Dunn, and W. T. McAllister.** 1998. Pausing and termination by bacteriophage T7 RNA polymerase. *J. Mol. Biol.* **280**:201-213.
160. **Ma, K., D. Temiakov, M. Jiang, M. Anikin, and W. T. McAllister.** 2002. Major conformational changes occur during the transition from an initiation complex to an elongation complex by T7 RNA polymerase. *J. Biol. Chem.* **277**:43206-43215.
161. **MacDonald, L. E., Y. Zhou, and W. T. McAllister.** 1993. Termination and slippage by T7 RNA polymerase. *J. Mol. Biol.* **232**:1030-1047.
162. **Macdonald, L. E., R. K. Durbin, J. J. Dunn, and W. T. McAllister.** 1994. Characterization of two types of termination signal for bacteriophage T7 RNA polymerase. *J. Mol. Biol.* **238**:145-158
163. **Makarova, O. V., E. M. Makarov, R. Sousa, and M. Dreyfus.** 1995. Transcribing of *Escherichia coli* genes with mutant T7 RNA polymerases: stability of *lacZ* mRNA inversely correlates with polymerase speed. *Proc. Natl. Acad. Sci. USA* **92**:12250-12254.
164. **Mäkelä, O., P.H. Mäkelä, and S. Soikkeli.** 1964. Sex-specificity of the bacteriophage T7. *Ann. Med. Exp. Biol. Fenn.* **42**:188-195.
165. **Marchand, I., A. W. Nicholson, and M. Dreyfus.** 2001. Bacteriophage T7 protein kinase phosphorylates RNase E and stabilizes mRNAs synthesized by T7 RNA polymerase. *Mol. Micro.* **42**:767-776.

166. **Marrs, B. L., and C. Yanofsky.** 1971. Host and bacteriophage specific messenger RNA degradation in T7-infected *Escherichia coli*. *Nature New Biol.* **234**:168-170.
167. **Martin, C. T. and J. E. Coleman.** 1987. Kinetic analysis of T7 RNA polymerase-promoter interactions with small synthetic promoters. *Biochemistry* **27**:2690-2696.
168. **Martin, C. T., D. K. Muller, and J. E. Coleman.** 1988. Processivity in early stages of transcription by T7 RNA polymerase. *Biochemistry* **27**:3966-3974.
169. **Matson, S. W., and C. C. Richardson.** 1983. DNA-dependent nucleoside 5'-triphosphatase activity of the gene 4 protein of bacteriophage T7. *J. Biol. Chem.* **258**:14009-14016.
170. **Matson, S. W., S. Tabor, and C. C. Richardson.** 1983. The gene 4 protein of bacteriophage T7. Characterization of helicase activity. *J. Biol. Chem.* **258**:14017-14024.
171. **Matsuo-Kato, H., H. Fujisawa, and T. Minagawa.** 1981. Structure and assembly of bacteriophage T3 tails. *Virology* **109**:157-164.
172. **Mayer, J. E., and M. Schweiger.** 1983. RNase III is positively regulated by T7 protein kinase. *J. Biol. Chem.* **258**:5340-5343.
173. **McAllister, W. T., and C. L. Barrett.** 1977. Roles of the early genes of bacteriophage T7 in shutoff of host macromolecular synthesis. *J. Virol.* **28**:543-553.
174. **McAllister, W. T., C. Morris, A. H. Rosenberg, and F. W. Studier.** 1981. Utilization of bacteriophage T7 late promoters in recombinant plasmids during infection. *J. Mol. Biol.* **153**:527-544.
175. **McAllister, W. T., and H.-L. Wu.** 1978. Regulation of transcription of bacteriophage T7. *Proc. Natl. Acad. Sci. USA* **75**:804-808.

176. **Meisel, A., T. A. Bickle, D. H. Kruger, and C. Schroeder.** 1992. Type III restriction enzymes need two inversely oriented recognition sites for DNA cleavage. *Nature* **355**:467-469.
177. **Mendelman, L. V., S. M. Notarnicola, and C. C. Richardson.** 1992. Roles of bacteriophage T7 gene 4 proteins in providing primase and helicase functions *in vivo*. *Proc. Natl. Acad. Sci. USA* **89**:10638-10642.
178. **Mendelman, L. V., and C. C. Richardson.** 1991. Requirements for primer synthesis by bacteriophage T7 63-kDa gene 4 protein. Roles of template sequence and T7 56-kDa gene 4 protein. *J. Biol. Chem.* **266**:23240-23250.
179. **Mentesana, P. E., S. T. Chin-Bow, R. Sousa, and W. T. McAllister.** 2000. Characterization of halted RNA polymerase elongation complexes reveals multiple factors that contribute to stability. *J. Mol. Biol.* **302**:1049-1062.
180. **Meynell, E., G. G. Meynell, and N. Datta.** 1968. Phylogenetic relationships of drug-resistance factors and other transmissible plasmids. *Bacteriol. Rev.* **32**:55-83.
181. **Miller, J. F., and M. H. Malamy.** 1983. Identification of the *pifC* gene and its role in negative control of F factor gene expression. *J. Bacteriol.* **156**:338-347.
182. **Miller, J. F., and M. H. Malamy.** 1984. Regulation of the F-factor *pif* operon: *pifO*, a site required in *cis* for autoregulation, titrates the *pifC* product in *trans*. *J. Bacteriol.* **160**:192-198.
183. **Moak, M., and I. J. Molineux.** 2000. Role of the gp16 lytic transglycosylase motif in bacteriophage T7 virions at the initiation of infection. *Mol. Microbiol.* **37**:345-355.
184. **Moak, M., and I. J. Molineux.** 2004. Peptidoglycan hydrolytic activities associated with bacteriophage virions. *Mol. Microbiol.* **51**:1169-1183..

185. **Moffatt, B.A., J.J. Dunn, and F.W. Studier.** 1984. Nucleotide sequence of the gene for bacteriophage T7 RNA polymerase. *J. Mol. Biol.* **173**:265-269.
186. **Moffatt, B. A., and F. W. Studier.** 1987. T7 lysozyme inhibits transcription by T7 RNA polymerase. *Cell* **49**:221-227.
187. **Moffatt, B. A., and F. W. Studier.** 1988. Entry of bacteriophage T7 DNA into the cell and escape from host restriction. *J. Bacteriol.* **170**:2095-2105.
188. **Molineux, I. J.** 1991. Host-parasite interactions: recent developments in the genetics of abortive phage infections. *New Biol.* **3**:230-236.
189. **Molineux, I. J.** 2001. No syringes please, ejection of T7 DNA from the virion is enzyme-driven. *Mol. Microbiol.* **40**:1-8.
190. **Molineux, I. J., C. K. Schmitt, and J. P. Condreay.** 1989. Mutants of bacteriophage T7 that escape F restriction. *J. Mol. Biol.* **207**:563-574.
191. **Molineux, I. J., and J. L. Spence.** 1984. Virus-plasmid interactions: mutants of bacteriophage T3 that abortively infect plasmid F-containing (F<sup>+</sup>) strains of *Escherichia coli*. *Proc. Natl. Acad. Sci. USA* **81**:1465-1469.
192. **Mooney, P. Q., North, R., and I. J. Molineux.** 1980. The Role of Bacteriophage T7 Gene 2 Protein in DNA Replication. *Nucl. Acids Res.* **8**:3043-3053.
193. **Morita, M., M. Tasaka, and H. Fujisawa.** 1993. DNA packaging ATPase of bacteriophage T3. *Virology* **193**:748-752.
194. **Morita, M., M. Tasaka, and H. Fujisawa.** 1994. Analysis of functional domains of the packaging proteins of bacteriophage T3 by site-directed mutagenesis. *J. Mol. Biol.* **235**:248-259.

195. **Morita, M., M. Tasaka, and H. Fujisawa.** 1995. Structural and functional domains of the DNA packaging protein of bacteriophage T3: importance of the C-terminal region of the large subunit in prohead binding. *J. Mol. Biol.* **245**:635-644.
196. **Morrison, T. G., D. D. Blumberg, and M. H. Malamy.** 1974. T7 protein synthesis in F' episome-containing cells: assignment of specific proteins to three translational groups. *J. Virol.* **13**:386-393.
197. **Morrison, T. G., and M. H. Malamy.** 1971. T7 translational control mechanisms and their inhibition by F factors. *Nature (London) New Biol.* **231**:37-41.
198. **Nakai, H., and C. C. Richardson.** 1990. The gene 1.2 protein of bacteriophage T7 interacts with the *Escherichia coli* dGTP triphosphohydrolase to form a GTP-binding protein. *J. Biol. Chem.* **265**:4411-4419.
199. **Nakasu, S., H. Fujisawa, and T. Minagawa.** 1983. Role of gene 8 product in morphogenesis of bacteriophage T3. *Virology* **127**:124-133.
200. **Nechaev, S. and K. Severinov.** 1999. Inhibition of *Escherichia coli* RNA polymerase by bacteriophage T7 gene 2 protein. *J. Mol. Biol.* **289**:815-826.
201. **Nelson, K., et al.** 2002. Complete genome sequence and comparative analysis of the metabolically versatile *Pseudomonas putida* KT2440. *Environ. Microbiol.* **4**:799-808.
202. **Noji, H., and M. Yoshida.** 2001. The Rotary Machine in the Cell, ATP Synthase. *J. Biol. Chem.* **276**:1665–1668.
203. **Notarnicola, S. M., K. Park, J. D. Griffith, and C. C. Richardson.** 1995. A domain of the gene 4 helicase/primase of bacteriophage T7 required for the formation of an active hexamer. *J. Biol. Chem.* **270**:20215-20224.

204. **Ontell, M. P., and D. Nakada.** 1980. Rescue of abortive T7 gene 2 mutant phage infection by rifampin. *J. Virol.* **34**:438-445.
205. **Paetkau, V., L. Langman, R. Bradley, D. Scraba, and R. C. Miller.** 1977. Folded, concatenated genomes as replication intermediates of bacteriophage T7 DNA. *J. Virol.* **22**:130-141.
206. **Pajunen, M.I., M. R. Elizondo, M. Skurnik, J. Kieleczawa, and I. J. Molineux.** 2002. Complete nucleotide sequence and likely recombinatorial origin of bacteriophage T3 J. *Mol. Biol.* **319**:1115–1132
207. **Pajunen, M. I., S. J. Kiljunen, M. E.-L. Söderholm, and M. Skurnik.** 2001. Complete genomic sequence of the lytic bacteriophage  $\phi$ YeO3-12 of *Yersinia enterocolitica* serotype O:3. *J. Bacteriol.* **183**:1928-1937.
208. **Pajunen, M. I., I. J. Molineux, and M. Skurnik.** Unpublished observation
209. **Patel, S. S., Rosenberg, A. H., K. Griffin, F. W. Studier, and K. A. Johnson.** 1992. Large scale purification and biochemical characterization of T7 primase/helicase proteins. Evidence for homodimers and heterodimers formation. *J. Biol. Chem.* **267**:15013-15021.
210. **Petter, J. G., and E. R. Vimr.** 1993. Complete nucleotide sequence of the bacteriophage K1F tail gene encoding endo-*N*-acylneuraminidase (Endo-*N*) and comparison to an Endo-*N* homolog in bacteriophage PK1E. *J. Bacteriol.* **175**:4354-4363.
211. **Pfennig-Yeh, M.L., H. Ponta, M. Hirsch-Kauffmann, H. J. Rahmsdorf, P. Herrlich, and M. Schweiger.** 1978. Early T7 gene expression: rates of RNA synthesis and degradation, protein kinase dependent termination of transcription, and efficiency of translation. *Mol. Gen. Genet.* **166**:127-140.



212. **Pierce, J.C., and W.E. Masker.** 1988. A single base change in gene *10* of bacteriophage T7 permits growth on *Shigella sonnei*. J. Virol. **62**:4369-4371.
213. **Prehm, P., B. Jann, K. Jann, G. Schmidt, and S. Stirm.** 1976. On a bacteriophage T3 and T4 receptor region within the cell wall lipopolysaccharide of *Escherichia coli* B. J. Mol. Biol. **101**:277-281.
214. **Rabkin, S. D. and C. C. Richardson.** 1988. Initiation of DNA replication at cloned origins of bacteriophage T7. J. Mol. Biol. **204**:903-916.
215. **Rabkin, S. D. and C. C. Richardson.** 1990. In vivo analysis of the initiation of bacteriophage T7 DNA replication. Virology **174**:585-592.
216. **Rahmsdorf, H. J., S. H. Pai, H. Ponta, P. Herrlich, R. Roskowski, M. Schweiger, and F. W. Studier.** 1974. Protein kinase induction in *E. coli* bacteriophage T7. Proc. Natl. Acad. Sci. USA **71**:586-589.
217. **Ramanculov, E., M. C. Chu, and I. J. Molineux.** Unpublished observations
218. **Raskin C. A, G. A. Diaz, K. Joho, and W. T. McAllister.** 1992. Substitution of a single bacteriophage T3 residue in bacteriophage T7 RNA polymerase at position 748 results in a switch in promoter specificity. J Mol Biol. **228**:506-515.
219. **Raskin, C. A., G. A. Diaz, and W. T. McAllister.** 1993. T7 RNA polymerase mutants with altered promoter specificities. Proc. Natl. Acad. Sci. USA. **90**:3147-3151.
220. **Robertson, E. S., L. A. Aggison, and A. W. Nicholson.** 1994. Phosphorylation of elongation factor G and ribosomal protein S6 in bacteriophage T7-infected *Escherichia coli*. Mol. Micro. **11**:1045-1057.

221. **Robertson, E. S., and A. W. Nicholson.** 1992. Phosphorylation of *Escherichia coli* translation initiation factors by the bacteriophage T7 protein kinase. *Biochemistry* **31**:4822-4827.
222. **Robins, W. P., and I. J. Molineux.** Unpublished observations.
223. **Roeder, G.S., and P.D. Sadowski.** 1977. Bacteriophage T7 morphogenesis: phage-related particles in cells infected with wild-type and mutant T7 phage. *Virology* **76**:263-285.
224. **Rohwer, F., A. Segall, G. Steward, V. Seguritan, M. Breitbart, F. Wolven, and F. Azam.** 2000. The complete genomic sequence of the marine phage Roseophage SIO1 shares homology with nonmarine phages. *Limnol. Oceanogr.* **45**:408–418.
225. **Rokyta, D., M. R. Badgett, I. J. Molineux, and J. J. Bull.** 2002 Experimental genomic evolution: extensive compensation for loss of DNA ligase activity in a virus *J. Mol. Evol.* **19**:230–238.
226. **Rong, M., B. He, W. T. McAllister, and R. K. Durbin.** 1998. Promoter specificity determinants of T7 RNA polymerase. *Proc. Natl. Acad. Sci. USA.* **95**:515-519.
227. **Rontó, G., M. M. Agamalyan, G. M. Drabkin, L. A. Feigin, and Y. M. Lvov.** 1983. Structure of bacteriophage T7. *Biophys. J.* **43**:309-314.
228. **Rosa,, M. D., and N. C. Andrews.** 1981. Phage T3 contains an exact copy of the 28 base-pair phage T7 RNA polymerase promoter sequence. *J. Mol. Biol.* **147**:41-53.
229. **Rosenberg, A. H., K. Griffin, F. W. Studier, M. McCormick, J. Berg, R. Novy, and R. Mierendorf.** 1996. *In* “T7Select phage display system: a powerful new protein display system based on bacteriophage T7. innovations - Newsletter of Novagen, Inc., pp. 1-6.

230. **Rosenberg, A. H., S. S. Patel, K. A. Johnson, and F. W. Studier.** 1992. Cloning and expression of gene 4 of bacteriophage T7 and creation and analysis of T7 mutants lacking the 4A primase/helicase or the 4B helicase. *J. Biol. Chem.* **267**:15005-15012.
231. **Rudolph, C. Freund-Mölbart, E., and Stirm, S.** 1975. Fragments of *Klebsiella* bacteriophage No. 11. *Virology* **64**:236-246.
232. **Saito, H., and C. C. Richardson.** 1981. Processing of mRNA by ribonuclease III regulates expression of gene 1.2 of bacteriophage T7. *Cell* **27**:533-542.
233. **Saito, H., and C. C. Richardson.** 1981. Genetic analysis of gene 1.2 of bacteriophage T7: isolation of a mutant of *Escherichia coli* unable to support the growth of T7 gene 1.2 mutants. *J. Virol.* **37**:343-351.
234. **Schmitt, C. K.** 1989. Incompatibility of T7 gene 1.2 with the F plasmid is the basis for F-mediated restriction of T7. Ph. D. Dissertation. University of Texas at Austin.
235. **Schmitt, C. K., P. Kemp, and I. J. Molineux.** 1991. Genes 1.2 and 10 of bacteriophages T3 and T7 determine the permeability lesions observed in infected cells of *Escherichia coli* expressing the F plasmid gene *pifA*. *J. Bacteriol.* **173**:6507-6514.
236. **Schmitt, C. K., P. Kemp, and I. J. Molineux.** 1995. Streptomycin and rifampicin-resistant mutants of *Escherichia coli* perturb exclusion of bacteriophage T7 by affecting synthesis of the F plasmid protein PifA. *J. Bacteriol.* **177**:1589-1594.
237. **Schmitt, C. K., and I. J. Molineux.** 1991. Expression of gene 1.2 and gene 10 of bacteriophage T7 is lethal to F plasmid-containing *Escherichia coli*. *J. Bacteriol.* **173**:1536-1543.

238. **Schmitt, M. P., P. J. Beck, C. A. Kearney, J. L. Spence, D. DiGiovanni, J. P. Condreay, and I. J. Molineux.** 1987. Sequence of a conditionally essential region of bacteriophage T3, including the primary origin of DNA replication. *J. Mol. Biol.* **193**:479-495.
239. **Scholl, D., S. Rogers, S. Adhya, and C. Merrill.** 2001. Bacteriophage K1-5 encodes two different tail fiber proteins, allowing it to infect and replicate on both K1 and K5 strains of *Escherichia coli*. *J. Virol.* **75**:2509-2515.
240. **Scholl, D., J. Kieleczawa, P. Kemp, J. Rush, C. C. Richardson, C. Merrill, S. Adhya, and I. J. Molineux.** 2003. Genomic analysis of bacteriophages SP6 and K1-5, an estranged subgroup of the T7 supergroup. *J. Mol. Biol.* **335**:1151-1171
241. **Serwer, P.** 1976. Internal proteins of bacteriophage T7. *J. Mol. Biol.* **107**:271-291.
242. **Serwer, P.** 1979. Fibrous projections from the core of a bacteriophage T7 capsid. *J. Supramol. Struct.* **58**:235-243.
243. **Serwer, P., S. A. Khan, S. J. Hayes, R. H. Watson, and G. A. Griess.** 1997. The conformation of packaged bacteriophage T7 DNA: informative images of negatively stained T7. *J. Struct. Biol.* **120**:32-43.
244. **Serwer, P., R. H. Watson, and S. J. Hayes.** 1982. Detection and characterization of agarose-binding, capsid-like particles produced during assembly of a bacteriophage T7 procapsid. *J. Virol.* **42**:583-594.
245. **Serwer, P., R. H. Watson, and S. J. Hayes.** 1987. Multidimensional analysis of intracellular bacteriophage DNA: effects of amber mutations in genes 3 and 19. *J. Virol.* **61**:3499-3509.

246. **Serwer, P., R. H. Watson, S. J. Hayes, and J. L. Allen.** 1983. Comparison of the physical properties and assembly pathways of the related bacteriophages T7, T3, and  $\phi$ II. *J. Mol. Biol.* **170**:447-469.
247. **Shibata, H., H. Fujisawa, and T. Minagawa.** 1987. Early events in DNA packaging in defined *in vitro* system of bacteriophage T3. *Virology* **159**:250-258.
248. **Shibata, H., H. Fujisawa, and T. Minagawa.** 1987. Characterization of the bacteriophage T3 DNA packaging reaction *in vitro* in a defined system. *J. Mol. Biol.* **196**:845-851.
249. **Shin, I., J. Kim, C. R. Cantor, and C. Kang.** 2000. Effects of saturation mutagenesis of the phage SP6 promoter on transcription activity, presented by activity logos. *Proc Natl. Acad. Sci. USA* **97**:3890-3895.
250. **Shinozaki, K., and T. Okazaki.** 1977. RNA-linked nascent DNA pieces in T7 phage-infected *Escherichia coli* cells. *Molec. Gen. Genet.* **154**:263-267.
251. **Shinozaki, K., and T. Okazaki.** 1978. T7 gene 6 exonuclease has RNase H activity. *Nucl. Acids Res.* **5**:4245-4261.
252. **Silberstein, S., M. Inouye, and F. W. Studier.** 1975. Studies on the role of bacteriophage T7 lysozyme during phage infection. *J. Mol. Biol.* **96**:1-11.
253. **Simon, M. N., and F. W. Studier.** 1973. Physical mapping of the early region of bacteriophage T7 DNA. *J. Mol. Biol.* **79**:249-265.
254. **Singleton, M. R., M. R. Sawaya, T. Ellenberger, and D. B. Wigley.** 2000. Crystal structure of T7 gene 4 ring helicase indicates a mechanism for sequential hydrolysis of nucleotides. *Cell* **101**:589-600.
255. **Singleton, M. R., and D. B. Wigley.** 2002. Modularity and specialization in superfamily 1 and 2 helicases. *J. Bacteriol.* **184**:1819-1826.

256. **Son, M., R. H. Watson, and P. Serwer.** 1993. The direction and rate of bacteriophage T7 DNA packaging *in vitro*. *Virology* **196**:282-289.
257. **Sousa, R., Y. J. Chung, J. P. Rose, and B. C. Wang.** 1993. Crystal structure of bacteriophage T7 RNA polymerase at 3.3Å resolution. *Nature* **364**:593-599.
258. **Sousa, R., and R. Padilla.** 1995. A mutant T7 RNA polymerase as a DNA polymerase. *EMBO J.* **14**:4609-4621.
259. **Sousa, R., D. Patra, and E. M. Lafer.** 1992. Model for the mechanism of bacteriophage T7 RNAP transcription and termination. *J. Mol. Biol.* **224**:319-334.
260. **Stano, N. M., and S. S. Patel.** 2002. The intercalating  $\beta$ -hairpin of T7 RNA polymerase plays an active role in promoter DNA melting and in stabilizing the melted DNA for efficient RNA synthesis. *J. Mol. Biol.* **315**:1009-1025.
261. **Steven, A. C., P. Serwer, M. E. Bisher, and B. L. Trus.** 1983. Molecular architecture of bacteriophage T7 capsid. *Virology* **124**:109-120.
262. **Steven, A. C., and B. L. Trus.** 1986. In *Electron Microscopy of Proteins, Vol. 5, Viral Structure*. Harris, J. R., and Horne, R. W. (eds). New York: Academic Press, pp. 1-35.
263. **Steven A. C, B. L. Trus, J. V. Maizel, M. Unser, D. A. Parry, J. S. Wall, J. F. Hainfeld, and F. W. Studier.** 1988. Molecular substructure of a viral receptor-recognition protein. The gp17 tail-fiber of bacteriophage T7. *J. Mol. Biol.* **200**:351-365.
264. **Strome, S., and E. T. Young.** 1978. Translational control of the expression of bacteriophage T7 gene 0.3. *J. Mol. Biol.* **125**:75-93.
265. **Strome, S., and E. T. Young.** 1980. Chemical and functional quantification of gene 0.3 messenger RNA during T7 infection. *J. Mol. Biol.* **136**:417-432.

266. **Strome, S., and E. T. Young.** 1980. Translational discrimination against bacteriophage T7 gene *0.3* messenger RNA. *J. Mol. Biol.* **136**:433-450.
267. **Stroud, R. M., P. Serwer, and M. J. Ross.** 1981. Assembly of bacteriophage T7. *Biophys. J.* **36**:743-757.
268. **Struthers-Schlinke, J. S., W. P. Robins, P. Kemp, and I. J. Molineux.** 2000. The internal head protein gp16 of bacteriophage T7 controls DNA ejection from the virion. *J. Mol. Biol.* **301**:35-45.
269. **Studier, F. W.** 1969. The genetics and physiology of bacteriophage T7. *Virology* **39**:562-574.
270. **Studier, F. W.** 1972. Bacteriophage T7. *Science* **176**:367-376.
271. **Studier, F. W.** 1973. Genetic analysis of non-essential bacteriophage T7 genes. *J. Mol. Biol.* **79**:227-236.
272. **Studier, F. W.** 1973. Analysis of bacteriophage T7 early RNAs and proteins on slab gels. *J. Mol. Biol.* **79**:237-248.
273. **Studier, F. W.** 1975. Gene *0.3* of bacteriophage T7 acts to overcome the DNA restriction system of the host. *J. Mol. Biol.* **94**:283-295.
274. **Studier, F. W.** 1979. Relationships among different strains of T7 and among T7-related bacteriophages. *Virology* **95**:70-84.
275. **Studier, F. W.** 1981. Identification and mapping of five new genes in bacteriophage T7. *J. Mol. Biol.* **153**:493-502.
276. **Studier, F. W., and R. Hausmann.** 1969. Integration of two sets of T7 mutants. *Virology* **39**:587-588.

277. **Studier, F. W., and J. V. Maizel.** 1969. T7-directed protein synthesis. *Virology* **39**:575-586.
278. **Studier, F. W., and N. R. Movva.** 1976. SAMase gene of bacteriophage T3 is responsible for overcoming host restriction. *J. Virol.* **19**:136-145.
279. **Studier, F. W., A. H. Rosenberg, J. J. Dunn, and J. W. Dubendorff.** 1990. Use of T7 RNA polymerase to direct expression of cloned genes. *Meth. Enzymol.* **185**:60-89.
280. **Subramanya, H. S., A. J. Doherty, S. R. Ashford, and D. B. Wigley.** 1996. Crystal structure of an ATP-dependent DNA ligase from bacteriophage T7. *Cell* **85**:607-615.
281. **Sugimoto, K., Y. Kohara, and T. Okazaki.** 1987. Relative roles of T7 RNA polymerase and gene 4 primase for the initiation of T7 phage DNA replication *in vivo*. *Proc. Natl. Acad. Sci. USA* **84**:3977-3981.
282. **Summers, W. C.** 1970. The process of infection with coliphage T7. IV. Stability of RNA in bacteriophage-infected cells. *J. Mol. Biol.* **51**:671-678.
283. **Sun, M., D. Louie, and P. Serwer.** 1997. Formation and cleavage of a DNA network during *in vitro* bacteriophage T7 DNA packaging: light microscopy of DNA metabolism. *Biochemistry* **36**:13018-13026.
284. **Sun, M., D. Louie, and P. Serwer.** 1999. Single-event analysis of the packaging of bacteriophage T7 DNA concatemers *in vitro*. *Biophys. J.* **77**:1627-1637.
285. **Tabor, S., H. E. Huber, and C. C. Richardson.** 1987. *Escherichia coli* thioredoxin confers processivity on the DNA polymerase activity of the gene 5 protein of bacteriophage T7. *J. Biol. Chem.* **262**:16212-16223.
286. **Tabor, S., and C. C. Richardson.** 1981. Template requirements for RNA primer synthesis by gene 4 protein of bacteriophage T7. *Proc. Natl. Acad. Sci. USA.* **78**:205-209.



287. **Tahirov, T.H., D. Temiakov, M. Anikin, V. Patlan, W. T. McAllister, D. G. Vassilyev, and S. Yokoyama.** 2002. Structure of a T7 RNA polymerase elongation complex at 2.9 Å resolution. *Nature* **420**:43-50.
288. **Tamanoi, F., H. Saito, and C. C. Richardson.** 1980. Physical mapping of primary and secondary origins of T7 DNA replication. *Proc. Natl. Acad. Sci. USA* **77**:2656-2660.
289. **Temiakov, D., P. E. Montesana, K. Ma, A. Mustaev, S. Borukhov, and W. T. McAllister.** 2000. The specificity loop of T7 RNA polymerase interacts first with the promoter and then with an elongating transcript, suggesting a mechanism for promoter clearance. *Proc. Natl. Acad. Sci. USA* **97**:14109-14114.
290. **Temiakov, D., V Patlan, M. Anikin, W. T. McAllister, S. Yokoyama, and D. G. Vassilyev.** 2004. Structural basis for substrate selection by T7 RNA polymerase. *Cell* **116**:381–391
291. **Toth, E. A., Y. Li, M. R. Sawaya, Y. Cheng, and T. Ellenberger.** 2003. The Crystal structure of the bifunctional primase-helicase of bacteriophage T7. *Mol. Cell* **12**:1113-1123.
292. **Tseng, T. Y., D. N. Frick, and C. C. Richardson.** 2000. Characterization of a novel DNA primase from the *Salmonella typhimurium* bacteriophage SP6. *Biochemistry* **39**:1643-1653.
293. **Tsuchida, S., H. Kokubo, M. Tasaka, and H. Fujisawa.** 1996. DNA sequences responsible for specificity of DNA packaging and phage growth interference of bacteriophages T3 and T7. *Virology* **217**:332-337.
294. **Újvári, A., and C. T. Martin.** 1996. Thermodynamic and kinetic measurements of promoter binding by T7 RNA polymerase. *Biochemistry* **35**:14574-14582.

295. **Újvári, A., and C. T. Martin.** 1997. Identification of a minimal binding element within the T7 RNA polymerase promoter. *J. Mol. Biol.* **273**:775-781.
296. **Újvári, A. and C. T. Martin.** 2000. Evidence for DNA bending at the T7 RNA polymerase promoter. *J. Mol. Biol.* **295**:1173-1184.
297. **Valpuesta, J. M., H. Fujisawa, S. Marco, J. M. Carazo, and J. L. Carrascosa.** 1992. Three-dimensional structure of T3 connector purified from overexpressing bacteria. *J. Mol. Biol.* **224**:103-112.
298. **Valpuesta, J. M., N. Sousa, I. Barthelemy, J. J. Fernández, H. Fujisawa, B. Ibarra, and J. L. Carrascosa.** 2000. Structural analysis of the bacteriophage T3 head-to-tail connector. *J. Struct. Biol.* **131**:146-155.
299. **VanLoock, M. S., Y-J. Chen, X. Yu, and S. S. Patel.** 2001. The primase active site is on the outside of the hexameric bacteriophage T7 gene 4 helicase-primase ring. *J. Mol. Biol.* **311**:951-956.
300. **Villemain, J. and R. Sousa.** 1998. Specificity in transcriptional regulation in the absence of specific DNA binding sites: the case of T7 lysozyme. *J. Mol. Biol.* **281**:793-802.
301. **Walkinshaw, M. D., P. Taylor, S. S. Sturrock, C. Atanasiu, T. Berge, R. M. Henderson, J. M. Edwardson, and D. T. F. Dryden.** 2002. Structure of Ocr from bacteriophage T7, a protein that mimics B-form DNA. *Mol. Cell* **9**:187-194.
302. **Wang, I., D. L. Smith, and R. Young.** 2000. Holins: the protein clocks of bacteriophage infections. *Annu. Rev. Microbiol.* **54**:799–825.
303. **Wang, W-F., X. Cheng, and I. J. Molineux.** 1999. Isolation and identification of *fxsA*, a gene that can suppress F exclusion of bacteriophage T7. *J. Mol. Biol.* **293**:485-499.

304. **Wang, W-F., W. Margolin, W., and I. J. Molineux.** 1999. Increased synthesis of an *Escherichia coli* membrane protein suppresses F exclusion of bacteriophage T7. *J. Mol. Biol.* **293**:501-512.
305. **Washington, M. T., Rosenberg, A. H., K. Griffin, F. W. Studier, and S. S. Patel.** 1996. Biochemical analysis of mutant primase/helicase proteins defective in DNA binding, nucleotide hydrolysis, and the coupling of hydrolysis with DNA unwinding. *J. Biol. Chem.* **271**:26825-26834.
306. **Watanabe, T., T. Takano, T. Arai, H. Nishida, and S. Sato.** 1966. Episome-mediated transfer of drug resistance in *Enterobacteriaceae*. X. Restriction and modification of phages by *fi*<sup>-</sup> R factors. *J. Bacteriol.* **92**:477-486.
307. **Watson, J. D.** 1972. Origin of concatemeric T7 DNA. *Nature New Bio.* **239**:197-201.
308. **White, J. H., and C. C. Richardson.** 1987. Processing of concatemers of bacteriophage T7 DNA *in vitro*. *J. Biol. Chem.* **262**:8851-8860.
309. **White, J. H., and C. C. Richardson.** 1987. Gene 18 protein of bacteriophage T7. *J. Biol. Chem.* **262**:8845-8850.
310. **White, J. H., and C. C. Richardson.** 1988. Gene 19 of bacteriophage T7. Overexpression, purification and characterization of its product. *J. Biol. Chem.* **263**:2469-2476.
311. **Wurgler, S. M., and C. C. Richardson.** 1990. Structure and regulation of the dGTP triphosphohydrolase from *Escherichia coli*. *Proc. Natl. Acad. Sci. USA* **87**:2740-2744.
312. **Yamada, Y., and D. Nakada.** 1976. Early to late switch in bacteriophage development: no translational discrimination between T7 early and late mRNA. *J. Mol. Biol.* **100**:35-46.
313. **Yamada, Y., J. Silnutzer, and D. Nakada.** 1978. Mutant of *Escherichia coli* which blocks T7 bacteriophage assembly: accumulation of short T7 DNA. *J. Mol. Biol.* **121**:95-121.

314. **Yamada, Y., J. Silnutzer, and D. Nakada.** 1979. Accumulation of bacteriophage T7 head-related particles in an *Escherichia coli* mutant. *J. Virol.* **31**:209-219.
315. **Yamada, Y., P. A. Whitaker, and D. Nakada.** 1974. Functional instability of T7 early mRNA *Nature* **248**:335-338.
316. **Yamada, Y., P. A. Whitaker, and D. Nakada.** 1974b. Early to late switch in bacteriophage T7 development; functional decay of T7 early messenger RNA. *J. Mol. Biol.* **89**:293-303.
317. **Yamada, Y., P. A. Whitaker, and D. Nakada.** 1975. Chemical stability of bacteriophage T7 early RNA. *J. Virol.* **16**:1683-1687.
318. **Yamagishi, M., H. Fujisawa, and T. Minagawa.** 1985. Isolation and characterization of bacteriophage T3/T7 hybrids and their use in studies on molecular basis of DNA-packaging specificity. *Virology* **144**:502-515.
319. **Yin, J.** 1993. Evolution of bacteriophage T7 in a growing plaque. *J. Bacteriol.* **175**:1272-1277
320. **Yin, Y. W. and T. A. Steitz.** 2002. Structural basis for the transition from initiation to elongation transcription in T7 RNA polymerase. *Science* **298**:1387-1395.
321. **Yin, Y. W., and T. A. Steitz.** 2004. The structural mechanism of translocation and helicase activity in T7 RNA polymerase. *Cell* **116**:393-404.
322. **Yu, X., M. M. Hingorani, S. S. Patel, and E. H. Egelman.** 1996. DNA is bound within the central hole to one or two of the six subunits of the T7 DNA helicase. *Nature Struct. Biol.* **3**:740-743.

323. **Yuzenkova, J., S. Nechaev, J. Berlin, D. Rogulja, K. Kuznedelov, R. Inman, A. Mushegian, and K. Severinov.** 2003. Genome of *Xanthomonas oryzae* Bacteriophage Xp10: an Odd T-Odd Phage. *J. Mol. Biol.* **330**:735-748.
324. **Zavriev, S. K., and Z. M. Kochkina.** 1986. Bacteriophages T3 and T7: transcription-dependent mechanism of the transport of phage DNA into the cell during infection. *Molek. Biol.* **20**:328-334.
325. **Zavriev, S. K., and M. F. Shemyakin.** 1982. RNA polymerase-dependent mechanism for the stepwise T7 phage DNA transport from the virion into *E. coli*. *Nucl. Acids Res.* **10**:1635-1652.
326. **Zavriev, S.K., and S.M. Vorob'ev.** 1983. Penetration of T7 DNA associated with its transcription during infection. *Molek. Biol.* **17**:1048-1059.
327. **Zhang, X.** 1995. T7 RNA polymerase and T7 lysozyme: genetic, biochemical and structural analysis of their interaction and multiple roles in T7 infection. Ph. D. Dissertation SUNY, Stonybrook, New York.
328. **Zhang X., and F. W. Studier.** 1995. Isolation of transcriptionally active mutants of T7 RNA polymerase that do not support phage growth. *J. Mol. Biol.* **250**:156-168.
329. **Zhang X., and F. W. Studier.** 1997. Mechanism of inhibition of T7 RNA polymerase by T7 lysozyme. *J. Mol. Biol.* **269**:964-981.
330. **Zillig, W., H. Fujiki, W. Blum, D. Janekovic, M. Schweiger, H.-J. Rahmsdorf, H. Ponta, and M. Kirsch-Kaufmann.** 1975. *In vivo* and *in vitro* phosphorylation of DNA-dependent RNA polymerase of *Escherichia coli* by bacteriophage T7-induced protein kinase. *Proc. Natl. Acad. Sci. USA* **72**:2506-2510.

331. **Zinder, N. D.** 1961. A bacteriophage specific for F<sup>-</sup> Salmonella strains. *Science* **133**:2069-2070.