

References from the Phage Literature that Discuss or Mention “Lysis From Without”

Supplemental material to

S. T. Abedon (2011). Lysis From Without. Bacteriophage. Vol. 1

I provide this list of references for three reasons. First is to preserve the literature search of books and articles for which I’ve confirmed the use of the phrase “lysis from without” or equivalent. Second is to indicate that the concept of lysis from without has been relevant over the years, including recent years, to a relatively large number of phage researchers. Lastly, it is within this literature that background reading for the main commentary can be found.

The list should not be assumed to be comprehensive but otherwise only includes English-language publications. It was generated through a combination of searches of PubMed (34 hits for “lysis from without” or “lysis-from-without”, not all of which were from the phage literature); searches on “lysis from without” in American Society for Microbiology, Genetics Society of America, Rockefeller University Press, and Society for General Microbiology journal or journals; a search of my personal reference database; automated searches of my PDF collection (on the phrase “lysis from without”); and follow up on references to the literature made by others. Each article was individually searched for the phrase “lysis from without” (which, in PDF form, automatically finds “lysis-from-without” as well), and if not present then “lysis” or “without”, or any abbreviations used by authors, e.g., “LO”, “LFW”, or “LWO”.

In the following table I have attempted to categorize these references at least to a first approximation. Note that I employ there at least four abbreviations, LO_V, LO_L, LO_R, and LO_S which refer to lysis from without as induced by phage virions, lysis from without as induced by phage lysins, resistance to lysis from without, and ‘lysis from without’ as induced by streptomycin, respectively. I’ve attempted to differentiate further especially among those references addressing LO_V. However, it is important for readers to appreciate that this differentiation does not constitute in any manner an in-depth review of the references presented. In addition, I purposefully avoided including references that are *not* from the phage literature.

Table S1 **Articles that discuss or mention lysis from without (and related concepts)**

| Category or sub-category | References |
|---|---|
| Lysis from without as mediated by whole virions (LO _V), includes discussions, experiments, definitions, caveats, etc., other than as listed below | 1-125 |
| Possible pre-1940 observations of LO _V | 126-129; see also 91,97 |
| LO _V consideration in phage therapy context | 130-146 |
| LO _V mention in molecular mechanisms context | 147-159 |
| Resistance to lysis from without (LO _R) | 160-192; see also 15 |
| Spot testing, plaque formation, or phage typing context | 193-211; see also 23,41 |
| LO _V not observed | 212-243 |
| LO _V , brief mention only | 244-272 |
| Publications in which the term “premature lysis” is used synonymously or in association with LO _V (sample only) | 11,32,98,101,106,115,118,119, 146,191,263 |
| LO _V -like experiments but term does not seem to be used | 273-276 |
| Lysis from without as mediated by lysin (LO _L) | 277-295; see also 10,11,95,101 |
| Hybrid LO _V and LO _L | 296-302 |
| ‘Lysis from without’ as mediated by streptomycin (LO _S) | 303-309 |

1. Hyman P, Abedon ST. Bacteriophage host range and bacterial resistance. *Adv Appl Microbiol* 2010; 70:217-48.
2. Abedon ST. Bacteriophage intraspecific cooperation and defection. In: Adams HT, ed. *Contemporary Trends in Bacteriophage Research*. New York: Nova Science Publishers, 2009:191-215.
3. Abedon ST, Duffy S, Turner PE. Bacteriophage Ecology. In: Schaecter M, ed. *Encyclopedia of Microbiology*. Oxford: Elsevier, 2009:42-57.
4. Hyman P, Abedon ST. Bacteriophage (overview). In: Schaecter M, ed. *Encyclopedia of Microbiology*. Oxford: Elsevier, 2009:322-38.
5. Hyman P, Abedon ST. Practical methods for determining phage growth parameters. *Meth Mol Biol* 2009; 501:175-202.
6. Abedon ST. Phage population growth: constraints, games, adaptation. In: Abedon ST, ed. *Bacteriophage Ecology*. Cambridge, UK: Cambridge University Press, 2008:64-93.
7. Seaman PF, Day MJ. Isolation and characterization of a bacteriophage with an unusually large genome from the Great Salt Plains National Wildlife Refuge, Oklahoma, USA. *FEMS Microbiol Ecol* 2007; 60:1-13.
8. Carey-Smith GV, Billington C, Cornelius AJ, Hudson JA, Heinemann JA. Isolation and characterization of bacteriophages infecting *Salmonella* spp. *FEMS Microbiol Lett* 2006; 258:182-6.
9. Millard AD, Mann NH. A temporal and spatial investigation of cyanophage abundance in the Gulf of Aqaba, Red Sea. *J Mar Biol Assoc U K* 2006; 86:507-15.
10. Carlson K. Working with bacteriophages: common techniques and methodological approaches. In: Kutter E, Sulakvelidze A, eds. *Bacteriophages: Biology and Application*. Boca Raton, Florida: CRC Press, 2005:437-94.
11. Takác M, Bläsi U. Phage P68 virion-associated protein 17 displays activity against clinical isolates of *Staphylococcus aureus*. *Antimicrob Agents Chemother* 2005; 49:2934-40.
12. Fischer UR, Velimirov B. High control of bacterial production by viruses in a eutrophic oxbow lake. *Aquat Microb Ecol* 2002; 27:1-12.
13. Rédei GP. *Genetics Manual: Current Theory, Concepts, Terms*. River Edge, NJ: World Science, 1998.

14. Asami K, Xing XH, Tanji Y, Unno H. Synchronized disruption of *Escherichia coli* cells by T4 phage infection. *J Ferment Bioeng* 1997; 83:511-6.
15. Abedon ST. Lysis and the interaction between free phages and infected cells. In: Karam JD, ed. *The Molecular Biology of Bacteriophage T4*. Washington, DC: ASM Press, 1994:397-405.
16. Matsushima P, Baltz RH. Transformation of *Saccharopolyspora spinosa* protoplasts with plasmid DNA modified in vitro to avoid host restriction. *Microbiology* 1994; 140:139-43.
17. Tarahovsky YS, Ivanitsky GR, Khusainov AA. Lysis of *Escherichia coli* cells induced by bacteriophage T4. *FEMS Microbiol Lett* 1994; 122:195-9.
18. Abedon ST. Lysis of lysis inhibited bacteriophage T4-infected cells. *J Bacteriol* 1992; 174:8073-80.
19. van Helvoort T. The controversy between John H. Northrop and Max Delbrück on the formation of bacteriophage: bacterial synthesis or autonomous multiplication? *Annals of Science* 1992; 49:545-75.
20. Young R. Bacteriophage lysis: mechanisms and regulation. *Microbiol Rev* 1992; 56:430-81.
21. Rees CE, Wilkins BM. Transfer of *tra* proteins into the recipient cell during bacterial conjugation mediated by plasmid Collb-P9. *J Bacteriol* 1989; 171:3152-7.
22. Smorawinska M, Denis F, Dery CV, Magny P, Brzezinski R. Characterization of SE-3, a virulent bacteriophage of *Saccharopolyspora erythraea*. *J Gen Microbiol* 1988; 134:1773-8.
23. Ackermann H-W, DuBow MS. *Viruses of Prokaryotes, Volume 1, General Properties of Bacteriophages*. Boca Raton, Florida: CRC Press, 1987.
24. Sanders ME. Bacteriophages of industrial importance. In: Goyal SM, Gerba GP, Bitton G, eds. *Phage Ecology*. New York: John Wiley & Sons, 1987:211-44.
25. Villaverde A, Guerrero R, Barbé J. Effect of P22-mediated receptor release and of phage DNA injection on cell viability of *Salmonella typhimurium*. *J Gen Virol* 1986; 67:2561-4.
26. Yancey SD, Porter RD. General recombination in *Escherichia coli* K-12: in vivo role of RecBC enzyme. *J Bacteriol* 1985; 162:29-34.
27. Woodward MJ, Charles HP. Genes for L-sorbose utilization in *Escherichia coli*. *J Gen Microbiol* 1982; 128:1969-80.

28. Birmingham VA, Pattee PA. Genetic transformation in *Staphylococcus aureus*: isolation and characterization of a competence-conferring factor from bacteriophage 80 α lysates. J Bacteriol 1981; 148:301-7.
29. Steensma HY. Adsorption of the defective phage PBS Z1 to *Bacillus subtilis* 168 Wt. J Gen Virol 1981; 52:93-101.
30. Steensma HY. Effect of defective phages on the cell membrane of *Bacillus subtilis* and partial characterization of the phage protein involved in killing. J Gen Virol 1981; 56:275-86.
31. Szewczyk B, Skórko R. Lysozyme activity of bacteriophage T4 ghosts. Biochim Biophys Acta 1981; 662:131-7.
32. Clark RW, Wever GH, Wiberg JS. High-molecular-weight DNA and the sedimentation coefficient: a new perspective based on DNA from T7 bacteriophage and two novel forms of T4 bacteriophage. J Virol 1980; 33:438-48.
33. Dudás B, Orosz L. Correlation between map position and phenotype of *Cti* mutants in the *C* cistron of *Rhizobium meliloti* phage 16-3. Genetics 1980; 96:321-9.
34. Eckersley K, Dow CS. *Rhodopseudomonas blastica* sp.nov.: a member of the *Rhodospirillaceae*. J Gen Microbiol 1980; 119:465-73.
35. Steinick LE, Wieslander A, Johansson KE, Liss A. Membrane composition and virus susceptibility of *Acholeplasma laidlawii*. J Bacteriol 1980; 143:1200-7.
36. Tucker WT, Pemberton JM. Transformation of *Rhodopseudomonas sphaeroides* with deoxyribonucleic acid isolated from bacteriophage R ϕ 6P. J Bacteriol 1980; 143:43-9.
37. Walker JT, Walker DH, Jr. Mutations in coliphage P1 affecting host cell lysis. J Virol 1980; 35:519-30.
38. Congdon AL, Kenny GE. Alteration of colonial morphology of *Acholeplasma laidlawii* and *Acholeplasma modicum* by infection with *Mycoplasmatales* viruses. J Bacteriol 1979; 138:962-8.
39. Stuttard C. Transduction of auxotrophic markers in a chloramphenicol-producing strain of *Streptomyces*. J Gen Microbiol 1979; 110:479-82.
40. Zorzopulos J, Kozloff LM, Chapman V, de Long S. Bacteriophage T4D receptors and the *Escherichia coli* cell wall structure: Role of spherical particles and protein b of the cell wall in bacteriophage infection. J Bacteriol 1979; 137:545-55.
41. Ackermann H-W, Audurier A, Berthiaume L, Jones LA, Mayo JA, Vidaver AK. Guidelines for bacteriophage characterization. Adv Virus Res 1978; 23:1-24.

42. Ou CT, Matsumoto I, Rozhin J, Tchen TT. Enzyme assay in cultures of *Escherichia coli* by a continuous flow method based on lysis from without by a phage ghost. *Anal Biochem* 1978; 88:357-66.
43. Verhue WM. Interaction of bacteriophage infection and low penicillin concentrations on the performance of yogurt cultures. *Appl Environ Microbiol* 1978; 35:1145-9.
44. Begg KJ, Doanachie WD. Growth of the *Escherichia coli* cell surface. *J Bacteriol* 1977; 129:1524-36.
45. Ely B, Johnson RC. Generalized transduction in *Caulobacter crescentus*. *Genetics* 1977; 87:391-9.
46. Thompson NE, Pattee PA. Transformation in *Staphylococcus aureus*: role of bacteriophage and incidence of competence among strains. *J Bacteriol* 1977; 129:778-88.
47. Marshall RJ, Berridge NJ. Selection and some properties of phage-resistant starters for cheese-making. *J Dairy Res* 1976; 43:449-58.
48. Snustad DP, Tigges MA, Parson KA, Bursch CJ, Caron FM, Koerner JF, et al. Identification and preliminary characterization of a mutant defective in the bacteriophage T4-induced unfolding of the *Escherichia coli* nucleoid. *J Virol* 1976; 17:622-41.
49. Svenson SB, Karlström OH. Bacteriophage T4-induced shut-off of host-specific translation. *J Virol* 1976; 17:326-34.
50. Corbel MJ, Morris JA. Studies on a smooth phage resistant variant of *Brucella abortus* II. Mechanism of phage resistance. *Brit J Exp Path* 1975; 56:1-7.
51. Loeb MR. Bacteriophage T4-mediated release of envelope components from *Escherichia coli*. *J Virol* 1974; 13:631-41.
52. Welkos S, Schreiber M, Baer H. Identification of *Salmonella* with the O-1 bacteriophage. *Appl Environ Microbiol* 1974; 28:618-22.
53. Sjöström J-E, Lindberg M, Philipson L. Competence for transfection in *Staphylococcus aureus*. *J Bacteriol* 1973; 113:576-85.
54. Skurray RA, Reeves P. Characterization of lethal zygotis associated with conjugation in *Escherichia coli* K-12. *J Bacteriol* 1973; 113:58-70.
55. Nugent K, Kennell D. Polypeptide synthesis by extracts from *Escherichia coli* treated with T2 ghosts. *J Virol* 1972; 10:1199-204.

56. Snustad DP, Warner HR, Parson KA, Anderson DL. Nuclear disruption after infection of *Escherichia coli* with a bacteriophage T4 mutant unable to induce endonuclease II. *J Virol* 1972; 10:124-33.
57. Mizobuchi K, Anderson GC, McCorquodale DJ. Abortive infection by bacteriophage BF23 due to the colicin Ib factor. I. genetic studies of nonrestricted and amber mutants of bacteriophage BF23. *Genetics* 1971; 68:323-40.
58. Duckworth DH. Biological activity of bacteriophage ghosts and "take-over" of host functions by bacteriophage. *Bacteriol Rev* 1970; 34:344-63.
59. Erskine JM. Effect of spermine on host-cell lysis and reproduction by a lactic streptococcal bacteriophage. *Appl Microbiol* 1970; 19:638-42.
60. Israeli M, Artman M. Leakage of β -galactosidase from *Escherichia coli*. *J Gen Virol* 1970; 7:137-42.
61. Wann M, Mahajan SK, Wood TH. Genetic mapping in *Escherichia coli* K-12 by radiation-induced crossing-over. *J Bacteriol* 1970; 103:601-6.
62. Chatterjee AN. Use of bacteriophage-resistant mutants to study the nature of the bacteriophage receptor site of *Staphylococcus aureus*. *J Bacteriol* 1969; 98:519-27.
63. Fields KL. Comparison of the action of colicins E1 and K on *Escherichia coli* with the effects of abortive infection by virulent bacteriophages. *J Bacteriol* 1969; 97:78-82.
64. Snustad DP. Site- and gene-specific limited heterocatalytic expression in bacteriophage T4-infected *Escherichia coli*. *J Virol* 1969; 3:533-5.
65. Yamagami H, Endo H. Loss of lysis inhibition in filamentous *Escherichia coli* infected with wild-type bacteriophage T4. *J Virol* 1969; 3:343-9.
66. Zeitsoun FM, Wilson ZE. The relation of bacteriophage to the walnut tree pathogens, *Erwinia nigrifluens* and *Erwinia rubrifaciens*. *Phytopathology* 1969; 59:756-61.
67. Bayer ME. Adsorption of bacteriophages to adhesions between wall and membrane of *Escherichia coli*. *J Virol* 1968; 2:346-56.
68. Buller CS, Astrachan L. Replication of T4rII bacteriophage in *Escherichia coli* K-12 (λ). *J Virol* 1968; 2:298-307.
69. Centifanto YM. Antiviral agent from λ -infected *E. coli* K12 1. Isolation. *Appl Microbiol* 1968; 16:827-34.
70. Christensen JR. Multiplication of Bacteriophage P1 Mutants in *Shigella dysenteriae* Strain Sh(P1). *J Virol* 1968; 2:1408-17.

71. Goepfert JM, Spira WM. Use of trypsin to increase bacteriophage yield and to facilitate the isolation of bacteriophage-resistant mutants. *J Virol* 1968; 2:1485-6.
72. Jones LM, Merz GS, Wilson JB. A lytic factor associated with brucellaphage causing "lysis-from-without". *Cell Mol Life Sci* 1968; 24:20-2.
73. Jones LM, Merz GS, Wilson JB. Phage typing reactions on *Brucella* species. *Appl Microbiol* 1968; 16:1179-90.
74. Oram JD, Reiter B. The adsorption of phage to group N streptococci. The specificity of adsorption and the location of phage receptor substances in cell-wall and plasma-membrane fractions. *J Gen Virol* 1968; 3:103-19.
75. Silver S, Levine E, Spielman PM. Cation fluxes and permeability changes accompanying bacteriophage infection of *Escherichia coli*. *J Virol* 1968; 2:763-71.
76. Bradley DE. Ultrastructure of bacteriophages and bacteriocins. *Bacteriol Rev* 1967; 31:230-314.
77. Doermann AH. The eclipse in the bacteriophage life cycle. In: Cairns J, Stent GS, Watson JD, eds. *Phage and the Origins of Molecular Biology* (expanded edition). Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press, 1966:79-87.
78. Eisenstark A. Bacteriophage techniques. *Meth Virol* 1967; 1:449-524.
79. Rosner JL, Adelberg EA, Yarmolinsky MB. An upper limit on β -galactosidase transfer in bacterial conjugation. *J Bacteriol* 1967; 94:1623-8.
80. Snustad DP. Limited genome expression in bacteriophage T4-infected *Escherichia coli*. I. demonstration of the effect. *Genetics* 1966; 54:923-35.
81. Snustad DP. Limited genome expression in bacteriophage T4-infected *Escherichia coli*. II. development and examination of a model. *Genetics* 1966; 54:937-54.
82. Alikhanian SI, Rubicas J, Krylov VN. Genetical transformation of T4 phage. *Genetics* 1965; 52:31-41.
83. Fattig WD, Lanni F. Mapping of temperature-sensitive mutants in bacteriophage T5. *Genetics* 1-8-1965; 51:157-66.
84. Oram JD, Reiter B. Phage-associated lysin affecting group N and group D streptococci. *J Gen Microbiol* 1965; 40:57-70.
85. Cota-Robles EH, Coffman MD. Electron microscopy of lysis from without of *Escherichia coli* B by coliphage T2. *J Ultrastruct Res* 1964; 10:305-16.
86. Heden C-G. Effects of hydrostatic pressure on microbial systems. *Bacteriol Rev* 1964; 28:14-29.

87. Cota-Robles EH, Coffman MD. Fine structure of the bacteriophage attachment process. *J Bacteriol* 1963; 86:266-73.
88. Fry BA. The infection of *Escherichia coli* with lambda (λ_{22}) phage and the establishment of lysogeny. *J Gen Microbiol* 1963; 31:297-309.
89. Morgan WJB. The examination of *Brucella* cultures for lysis by phage. *J Gen Microbiol* 1963; 30:437-43.
90. Reiter B, Oram JD. A discussion of aspects of cell-surface adsorption phenomena. *J Gen Microbiol* 1963; 32:29-32.
91. Stent GS. *Molecular Biology of Bacterial Viruses*. San Francisco, CA: WH Freeman and Co., 1963.
92. Kallings LO. Lysis from without or within with the 0-1 phage. specific to the genus *Salmonella*. *Acta Pathol Microbiol Scand* 1962; 54:345.
93. Stárka J. Cellular division and reproduction of bacteriophage in synchronized cultures of *Escherichia coli*. *J Gen Microbiol* 1962; 29:83-90.
94. Boyd JSK, Bidwell DE. The type A phages of *Salmonella typhimurium*: observations on temperate phage and lysogenesis. *J Gen Microbiol* 1961; 26:443-65.
95. Li K, Barksdale L, Garmise L. Phenotypic alterations associated with the bacteriophage carrier state of *Shigella dysenteriae*. *J Gen Microbiol* 1961; 24:355-67.
96. Hartman PE, Loper JC, Serman D. Fine structure mapping by complete transduction between histidine-requiring *Salmonella* mutants. *J Gen Microbiol* 1960; 22:323-53.
97. Stent GS. *Papers on Bacterial Viruses*. Boston: Little, Brown and Co., 1960.
98. Adams MH. *Bacteriophages*. New York: InterScience, 1959.
99. Kohn A, Hertman I. A new type of lysis from without. *Proc Soc Exp Biol Med* 1959; 101:372-4.
100. Kornberg A, Zimmerman SB, Kornberg SR, Josse J. Enzymatic synthesis of deoxyribonucleic acid. VI. Influence of bacteriophage T2 on the synthetic pathway in host cells. *Proc Natl Acad Sci U S A* 1959; 45:772-85.
101. Stent GS. Intracellular multiplication of bacterial viruses. In: Burnet FM, Stanley WM, eds. *The Viruses: Biochemical, Biological and Biophysical Properties: Plant and Bacterial Viruses*. New York: Academic Press, 1959:237-80.
102. Weidel W, Primosigh J. Biochemical parallels between lysis by virulent phage and lysis by penicillin. *J Gen Microbiol* 1958; 18:513-7.

103. Weidel W. Bacterial Viruses (with particular reference to adsorption/penetration). *Ann Rev Microbiol* 1958; 13:27-48.
104. Carey WF, Spilman W, Baron LS. Protoplast formation by mass adsorption of inactive bacteriophage. *J Bacteriol* 1957; 74:543-4.
105. Barrington LF, Kozloff LM. Action of bacteriophage on isolated host cell walls. *J Biol Chem* 1956; 223:615-27.
106. Boyd JSK. Bacteriophage. *Biol Rev* 1956; 31:71-107.
107. Brenner S. The adsorption of bacteriophage by sensitive and resistant cells of *Escherichia coli* strain B. *Proc R Soc Lond B Biol Sci* 1955; 144:93-9.
108. Puck TT, Lee HH. Mechanism of cell wall penetration by viruses II. Demonstration of cyclic permeability change accompanying virus infection of *Escherichia coli* B cells. *J Exp Med* 1955; 101:151-75.
109. Puck TT. Cell attachment and penetration by viruses. In: Hartman FW, Horsfall FL, Kidds JG, eds. *The Dynamics of Virus and Rickettsial Infections*. New York: Blakiston, Co., 1954:16-29.
110. Puck TT, Lee HH. Mechanisms of cell wall penetration by viruses I. An increase in host cell permeability by bacteriophage infection. *J Exp Med* 1954; 99:481-94.
111. Lieb M. The establishment of lysogenicity in *Escherichia coli*. *J Bacteriol* 1953; 65:642-51.
112. Puck TT. The first steps of virus invasion. *Cold Spring Harbor Symp Quant Biol* 1953; 18:149-54.
113. Sher IH, Mallette MF. The use of bacteriophage in releasing two decarboxylases from *Escherichia coli* B. *J Biol Chem* 1953; 200:257-62.
114. Weidel W. Further studies on the membrane of "E. coli" B. *Ann Inst Pasteur* 1953; 84:60-5.
115. Doermann AH. The intracellular growth of bacteriophages I. liberation of intracellular bacteriophage T4 by premature lysis with another phage or with cyanide. *J Gen Physiol* 1952; 35:645-56.
116. Dulbecco R. A critical test of the recombination theory of multiplicity reactivation. *J Bacteriol* 1952; 63:199-207.
117. Bertani G. Studies on lysogenesis I. the mode of phage liberation by lysogenic *Escherichia coli*. *J Bacteriol* 1951; 62:293-300.

118. Maaløe O, Watson JD. The transfer of radioactive phosphorus from parental to progeny phage. *Proc Natl Acad Sci USA* 1951; 37:507-13.
119. Benzer S, Hudson W, Weidel W, Delbrück M, Stent GS, Weigle JJ, et al. A syllabus on procedures, facts, and interpretations in phage. In: Delbrück M, ed. *Viruses 1950*. Pasadena, CA: California Institute of Technology, 1950:100-47.
120. Watson JD. The properties of X-ray inactivated bacteriophage I. Inactivation by direct effect. *J Bacteriol* 1950; 60:697-718.
121. Cohen SS. Growth requirements of bacterial viruses. *Bacteriol Rev* 1949; 13:1-24.
122. Doermann AH. Intracellular growth of bacteriophage. *Year Book Carnegie Inst Wash* 1948; 47:176-82.
123. Doermann AH. Lysis and lysis inhibition with *Escherichia coli* bacteriophage. *J Bacteriol* 1948; 55:257-75.
124. Price WH. Phage formation in *Staphylococcus muscae* cultures II. The release of the virus from the bacterial cell. *J Gen Physiol* 1948; 32:203-11.
125. Delbrück M. The growth of bacteriophage and lysis of the host. *J Gen Physiol* 1940; 23:643-60.
126. Northrop JH. Concentration and purification of bacteriophage. *J Gen Physiol* 1938; 21:335-66.
127. Krueger AP. The nature of bacteriophage and its mode of action. *Physiol Rev* 1936; 16:129-72.
128. Burnet FM. Immunological studies with phage-coated bacteria. *Brit J Exp Path* 1933; 14:93-100.
129. Krueger AP, Northrop JH. The kinetics of the bacterium-bacteriophage reaction. *J Gen Physiol* 1930; 14:223-54.
130. Abedon ST, Thomas-Abedon C. Phage therapy pharmacology. *Curr Pharm Biotechnol* 2010; 11:28-47.
131. Hudson JA, Bigwood T, Premaratne A, Billington C, Horn B, McIntyre L. Potential to use ultraviolet-treated bacteriophages to control foodborne pathogens. *Foodborne Pathog Dis* 2010; 7:687-93.
132. Ye J, Kostrzynska M, Dunfield K, Warriner K. Control of *Salmonella* on sprouting mung bean and alfalfa seeds by using a biocontrol preparation based on antagonistic bacteria and lytic bacteriophages. *J Food Prot* 2010; 73:9-17.

133. Abedon ST. Kinetics of phage-mediated biocontrol of bacteria. *Foodborne Pathog Dis* 2009; 6:807-15.
134. Bigwood T, Hudson JA, Billington C. Influence of host and bacteriophage concentrations on the inactivation of food-borne pathogenic bacteria by two phages. *FEMS Microbiol Lett* 2009; 291:59-64.
135. Kocharunchitt C, Ross T, McNeil DL. Use of bacteriophages as biocontrol agents to control *Salmonella* associated with seed sprouts. *Int J Food Microbiol* 2009; 128:453-9.
136. Bigwood T, Hudson JA, Billington C, Carey-Smith GV, Heinemann JA. Phage inactivation of foodborne pathogens on cooked and raw meat. *Food Microbiol* 2008; 25:400-6.
137. Callaway TR, Edrington TS, Brabban AD, Anderson RC, Rossman ML, Engler MJ, et al. Bacteriophage isolated from feedlot cattle can reduce *Escherichia coli* O157:H7 populations in ruminant gastrointestinal tracts. *Foodborne Pathog Dis* 2008; 5:183-91.
138. Goodridge LD. Phages, bacteria, and food. In: Abedon ST, ed. *Bacteriophage Ecology*. Cambridge, UK: Cambridge University Press, 2008:302-31.
139. Johnson RP, Gyles CL, Huff WE, Ojha S, Huff GR, Rath NC, et al. Bacteriophages for prophylaxis and therapy in cattle, poultry and pigs. *An Hlth Res Rev* 2008; 9:201-15.
140. Brüssow H. Phage therapy: the Western perspective. In: McGrath S, van Sinderen D, eds. *Bacteriophage: Genetics and Microbiology*. Norfolk, UK: Caister Academic Press, 2007:159-92.
141. Hanlon GW. Bacteriophages: an appraisal of their role in the treatment of bacterial infections. *Int J Antimicrob Agents* 2007; 30:118-28.
142. Hudson JA, Billington C, Carey-Smith G, Greening G. Bacteriophages as biocontrol agents in food. *J Food Prot* 2005; 68:426-37.
143. Sulakvelidze A, Kutter E. Bacteriophage therapy in humans. In: Kutter E, Sulakvelidze A, eds. *Bacteriophages: Biology and Application*. Boca Raton, Florida: CRC Press, 2005:381-436.
144. Goode D, Allen VM, Barrow PA. Reduction of experimental *Salmonella* and *Campylobacter* contamination of chicken skin by application of lytic bacteriophages. *Appl Environ Microbiol* 2003; 69:5032-6.
145. Zorzopulos J, de Long S, Chapman V, Kozloff LM. Evidence for a net-like organization of lipopolysaccharide particles in the *Escherichia coli* outer membrane. *FEMS Microbiol Lett* 1989; 61:23-6.

146. Shaw DR, Maurelli AT, Goguen JD, Straley SC, Curtiss R, III. Use of UV-irradiated bacteriophage T6 to kill extracellular bacteria in tissue culture infectivity assays. *J Immunol Meth* 1983; 56:75-83.
147. Nemoto M, Mio K, Kanamaru S, Arisaka F. ORF334 in *Vibrio* phage KVP40 plays the role of gp27 in T4 phage to form a heterohexameric complex. *J Bacteriol* 5-7-2008; 190:3606-12.
148. Rashel M, Uchiyama J, Takemura I, Hoshiba H, Ujihara T, Takatsuji H, et al. Tail-associated structural protein gp61 of *Staphylococcus aureus* phage ϕ MR11 has bifunctional lytic activity. *FEMS Microbiol Lett* 2008; 284:9-16.
149. Moak M, Molineux IJ. Peptidoglycan hydrolytic activities associated with bacteriophage virions. *Mol Microbiol* 2004; 51:1169-83.
150. Arisaka F, Kanamaru S, Leiman P, Rossmann MG. The tail lysozyme complex of bacteriophage T4. *Int J Biochem Cell Biol* 2003; 35:16-21.
151. Guosheng L, Yi L, Xiangdong C, Peng L, Ping S, Songsheng Q. Study on interaction between T4 phage and *Escherichia coli* B by microcalorimetric method. *J Virol Meth* 2003; 112:137-43.
152. Takeda S, Hoshida K, Arisaka F. Mapping of functional sites on the primary structure of the tail lysozyme of bacteriophage T4 by mutation analysis. *Biochim Biophys Acta* 1998; 1384:243-52.
153. Mosig G, Lin GW, Franklin J, Fan WH. Functional relationships and structural determinants of two bacteriophage T4 lysozymes: A soluble gene *e* and a baseplate-associated gene 5 protein. *New Biologist* 1989; 1:171-80.
154. Nakagawa H, Arisaka F, Ishii S-I. Isolation and characterization of the bacteriophage T4 tail-associated lysozyme. *J Virol* 1985; 54:460-6.
155. Kozloff LM. The T4 particle: low-molecular-weight compounds and associated enzymes. In: Mathews CK, Kutter EM, Mosig G, Berget PB, eds. *Bacteriophage T4*. Washington, DC: American Society for Microbiology, 1983:25-31.
156. Kao SH, McClain WH. Baseplate protein of bacteriophage T4 with both structural and lytic functions. *J Virol* 1980; 34:95-103.
157. Eichholtz H, Freund-Molbert E, Stirn S. *Escherichia coli* capsule bacteriophages. V. Lysozyme 29. *J Virol* 1975; 15:985-93.
158. Mathews CK. *Bacteriophage Biochemistry*. New York: Van Nostrand Reinhold Co., 1971.

159. Garen A, Kozloff LM. The initiation of bacteriophage infection. In: Burnet FM, Stanley WM, eds. *The Viruses: Biochemical, Biological and Biophysical Properties: Plant and Bacterial Viruses*. New York: Academic Press, 1959:203-36.
160. Kutter E, Raya R, Carlson K. Molecular mechanisms of phage infection. In: Kutter E, Sulakvelidze A, eds. *Bacteriophages: Biology and Application*. Boca Raton, Florida: CRC Press, 2005:165-222.
161. Abedon ST. Bacteriophage T4 resistance to lysis-inhibition collapse. *Genet Res* 1999; 74:1-11.
162. Kanamaru S, Gassner NC, Ye N, Takeda S, Arisaka F. The C-terminal fragment of the precursor tail lysozyme of bacteriophage T4 stays as a structural component of the baseplate after cleavage. *J Bacteriol* 1999; 181:2739-44.
163. Obringer J, McCreary P, Bernstein H. Bacteriophage T4 genes *sp* and 40 apparently are the same. *J Virol* 1988; 62:3043-5.
164. Kao SH, McClain WH. Roles of T4 gene 5 and gene *s* products in cell lysis. *J Virol* 1980; 34:104-7.
165. Ennis HL, Kievitt KD. Alteration of the *Escherichia coli* membrane by addition of bacteriophage T4 protein synthesized after infection. *J Virol* 1977; 22:553-60.
166. Shive K, Earhart CF. Phleomycin-induced solubilization of deoxyribonucleic acid in uninfected and T bacteriophage-Infected *Escherichia coli* B. *Antimicrob Agents Chemother* 1976; 10:150-6.
167. Buller CS, Vander Maten V, Faurot D, Nelson ET. Phospholipase activity in bacteriophage-infected *Escherichia coli*. II. Activation of phospholipase by T4 ghost infection. *J Virol* 1975; 15:1141-7.
168. Hardaway KL, Maten MV, Buller CS. Phospholipase activity in bacteriophage-infected *Escherichia coli*. III. Phospholipase A involvement in lysis of T4-infected cells. *J Virol* 1975; 16:867-71.
169. Morse JW, Cohen PS. Synthesis of functional bacteriophage T4-delayed early mRNA in the absence of protein synthesis. *J Virol* 1975; 16:330-9.
170. Beckey AD, Wulff JL, Earhart CF. Early synthesis of membrane protein after bacteriophage T4 infection. *J Virol* 1974; 14:886-94.
171. Cornett JB. Spackle and immunity functions of bacteriophage T4. *J Virol* 1974; 13:312-21.
172. Fletcher G, Wulff JL, Earhart CF. Localization of membrane protein synthesis after infection with bacteriophage T4. *J Virol* 1974; 13:73-80.

173. Okamoto K, Yutsudo M. Participation of the *s* gene product of phage T4 in the establishment of resistance to T4 ghosts. *Virology* 1974; 58:369-76.
174. Ennis HL, Kievitt KD. Association of the RIIA protein with the bacterial membrane. *Proc Natl Acad Sci USA* 1973; 70:1468-72.
175. Jollick JD, Gerencser VF. The mechanism of a host-dependent abortive bacteriophage infection in *Caulobacter*. *Can J Microbiol* 1973; 19:467-73.
176. Vallée M, Cornett JB. The immunity reaction of bacteriophage T4: a noncatalytic reaction. *Virology* 1973; 53:441-7.
177. Yasbin RE, Wilson GA, Young FE. Transformation and transfection in lysogenic strains of *Bacillus subtilis* 168. *J Bacteriol* 1973; 113:540-8.
178. Yutsudo M, Okamoto K. Immediate early expression of the gene causing superinfection breakdown in bacteriophage T4B. *J Virol* 1973; 12:1628-30.
179. Palefski S, Hemphill HE, Kolenbrander PE, Whitely HR. Dominance relationships in mixedly infected *Bacillus subtilis*. *J Virol* 1972; 9:594-601.
180. Peterson RF, Cohen PS, Ennis HL. Properties of phage T4 messenger RNA synthesized in the absence of protein synthesis. *Virology* 1972; 48:201-8.
181. Anderson CW, Eigner J. Breakdown and exclusion of superinfecting T-even bacteriophage in *Escherichia coli*. *J Virol* 1971; 8:869-86.
182. Buller CS, Dobbs K. T4-coliphage infection of *Escherichia coli* with defective cell envelopes. *Biochem Biophys Res Com* 1971; 43:658-65.
183. Sauri CJ, Earhart CF. Superinfection with bacteriophage T4: Inverse relationship between genetic exclusion and membrane association of deoxyribonucleic acid of secondary bacteriophage. *J Virol* 1971; 8:856-9.
184. Tsugita A. Phage lysozyme and other lytic enzymes. In: Boyer PO, ed. *The Enzymes*. 3. New York: Academic Press, 1971:344-411.
185. Cohen LW. Delayed lysis with a mutant of *Salmonella* bacteriophage P22. *J Virol* 1969; 4:209-13.
186. Jonasson J, Rutberg L, Young FE. Lysogenic conversion in *Bacillus amyloliquefaciens* H affecting viral adsorption. *J Virol* 1969; 4:309-548.
187. Peterson RHF, Buller CS. Phospholipid metabolism in T4 bacteriophage-infected *Escherichia coli* K-12 (λ). *J Virol* 1969; 3:463-8.
188. Cohen PS. Reversible repression of early enzyme synthesis in bacteriophage T4-infected *Escherichia coli*. *J Virol* 1968; 2:192-7.

189. Couse NL. Control of lysis of T4-infected *Escherichia coli*. J Virol 1968; 2:198-207.
190. Emrich J. Lysis of T4-infected bacteria in the absence of lysozyme. Virology 1968; 35:158-65.
191. Wagner RR. Viral interference. Some considerations of basic mechanisms and their potential relationship to host resistance. Bacteriol Rev 1960; 24:151-66.
192. Visconti N. Resistance to lysis from without in bacteria infected with T2 bacteriophage. J Bacteriol 1953; 66:247-53.
193. Petty NK, Toribio AL, Goulding D, Foulds I, Thomson N, Dougan G, et al. A generalized transducing phage for the murine pathogen *Citrobacter rodentium*. Microbiology 2007; 153:2984-8.
194. Petty NK, Foulds IJ, Pradel E, Ewbank JJ, Salmond GP. A generalized transducing phage (ϕ IF3) for the genomically sequenced *Serratia marcescens* strain Db11: a tool for functional genomics of an opportunistic human pathogen. Microbiology 2006; 152:1701-8.
195. Smith MCM. Molecular genetics of *Streptomyces* phages. In: Calendar R, Abedon ST, eds. The Bacteriophages. Oxford: Oxford University Press, 2006:621-35.
196. Li X, Zhou X, Deng Z. Isolation and characterization of *Micromonospora* phage Φ HAU8 and development into a phasmid. Appl Environ Microbiol 2004; 70:3893-7.
197. Matsuzaki S, Yasuda M, Nishikawa H, Kuroda M, Ujihara T, Shuin T, et al. Experimental protection of mice against lethal *Staphylococcus aureus* infection by novel bacteriophage ϕ MR11. J Infect Dis 2003; 187:613-24.
198. Foley-Thomas EM, Whipple DL, Bermudez LE, Barletta RG. Phage infection, transfection and transformation of *Mycobacterium avium* complex and *Mycobacterium paratuberculosis*. Microbiology 1995; 141:1173-81.
199. Carlson K, Miller ES. General procedures. In: Karam JD, ed. Molecular Biology of Bacteriophage T4. Washington, DC: ASM Press, 1994:427-37.
200. Katz L, Chiang SJ, Tuan JS, Zablen LB. Characterization of bacteriophage ϕ C69 of *Saccharopolyspora erythraea* and demonstration of heterologous actinophage propagation by transfection of *Streptomyces* and *Saccharopolyspora*. J Gen Microbiol 1988; 134:1765-71.
201. Grund AD, Hutchinson CR. Bacteriophages of *Saccharopolyspora erythraea*. J Bacteriol 1987; 169:3013-22.
202. Parisi JT. Coagulase-negative staphylococci and the epidemiological typing of *Staphylococcus epidermidis*. Microbiol Rev 1985; 49:126-39.

203. Hu N-T, Thiel T, Gidding TH, Jr., Wold CP. New *Anabaena* and *Nostoc* cyanophages from sewage settling ponds. *Virology* 1981; 114:236-46.
204. Persley GJ, Crosse JE. A bacteriophage specific to race 2 of the cherry strain of *Pseudomonas morsprunorum*. *Ann Appl Biol* 1978; 89:219-22.
205. Skjold SA, Wannamaker LW. Method for phage typing group A type 49 streptococci. *J Clin Microbiol* 1976; 4:232-8.
206. Wallenfels B, Jann K. The action of bacteriophage $\Omega 8$ on two strains of *Escherichia coli* O8. *J Gen Microbiol* 1974; 81:131-41.
207. Wannamaker LW, Almquist S, Skjold S. Intergroup phage reactions and transduction between group C and group A streptococci. *J Exp Med* 1973; 137:1338-53.
208. Civerolo EL. Interaction between bacteria and bacteriophages on plant surfaces and in plant tissues. In: Geesteranus HPM, ed. *Plant Pathogenic Bacteria* 1971. Proceedings of the Third International Conference on Plant Pathogenic Bacteria, Wageningen, 14-21 April 1971. The Netherlands: University of Toronto Press, 1972:25-37.
209. Colón AE, Cole RM, Leonard CG. Intergroup lysis and transduction by streptococcal bacteriophages. *J Virol* 1972; 9:551-3.
210. Souza KA, Ginoza HS, Haight RD. Isolation of a polyvalent bacteriophage for *Escherichia coli*, *Klebsiella pneumoniae*, and *Aerobacter aerogenes*. *J Virol* 1972; 9:851-6.
211. Stirm S. *Escherichia coli* K bacteriophages. I. Isolation and introductory characterization of five *Escherichia coli* K bacteriophages. *J Virol* 1968; 2:1107-14.
212. Uchiyama J, Rashed M, Maeda Y, Takemura I, Sugihara S, Akechi K, et al. Isolation and characterization of a novel *Enterococcus faecalis* bacteriophage ϕ EF24C as a therapeutic candidate. *FEMS Microbiol Lett* 2008; 278:200-6.
213. Awais R, Fukudomi H, Miyanaga K, Unno H, Tanji Y. A recombinant bacteriophage-based assay for the discriminative detection of culturable and viable but nonculturable *Escherichia coli* O157:H7. *Biotechnol Prog* 2006; 22:853-9.
214. Molineux IJ. Fifty-three years since Hershey and Chase; much ado about pressure but which pressure is it? *Virology* 2006; 344:221-9.
215. Heineman RH, Molineux IJ, Bull JJ. Evolutionary robustness of an optimal phenotype: re-evolution of lysis in a bacteriophage deleted for its lysin gene. *J Mol Evol* 2005; 61:181-91.

216. Oda M, Morita M, Unno H, Tanji Y. Rapid detection of *Escherichia coli* O157:H7 by using green fluorescent protein-labeled PP01 bacteriophage. *Appl Environ Microbiol* 2004; 70:527-34.
217. Kasman LM, Kasman A, Westwater C, Dolan J, Schmidt MG, Norris JS. Overcoming the phage replication threshold: a mathematical model with implications for phage therapy. *J Virol* 2002; 76:5557-64.
218. Moak M, Molineux IJ. Role of the Gp16 lytic transglycosylase motif in bacteriophage T7 virions at the initiation of infection. *Mol Microbiol* 2000; 37:345-55.
219. Shibata A, Kogure K, Koike I, Ohwada K. Formation of submicron colloidal particles from marine bacteria by viral infection. *Mar Ecol Prog Ser* 1997; 155:303-7.
220. Alatosava T, Jütte H, Seiler H. Transmembrane cation movements during infection of *Lactobacillus lactis* by bacteriophage LL-H. *J Gen Virol* 1987; 68:1525-32.
221. Kuhn SP, Lampel JS, Strohl WR. Isolation and characterization of a temperate bacteriophage from *Streptomyces galilaeus*. *Appl Environ Microbiol* 1987; 53:2708-13.
222. Ito S-I, Nishimune T, Abe M, Kimoto M, Hayashi R. Bacteriocinlike killing action of a temperate bacteriophage ϕ BA1 of *Bacillus aneurinolyticus*. *J Virol* 1986; 59:103-11.
223. Waters RE, Chan AT. *Micromonas pusilla* virus: the virus growth cycle and associated physiological events within the host cells; host range mutations. *J Gen Virol* 1982; 63:199-206.
224. Haarr L, Jensen HB, Helland DE. Inhibition of T7 development at high concentrations of the phage. *J Gen Virol* 1981; 53:115-23.
225. Hemphill HE, Whitely HR. Bacteriophages of *Bacillus subtilis*. *Bacteriol Rev* 1975; 39:257-315.
226. Schnaitman C, Smith D, Forn de Salsas M. Temperate bacteriophage which causes the production of a new major outer membrane protein by *Escherichia coli*. *J Virol* 1975; 15:1121-30.
227. Boling ME, Setlow JK. Marker rescue in *Haemophilus influenzae* bacteriophage. *J Virol* 1974; 14:1056-62.
228. Cocito C. Origin and metabolic properties of the RNA species formed during the replication cycle of virus 2C. *J Virol* 1974; 14:1482-93.
229. Zierdt CH. Properties of *Corynebacterium acnes* bacteriophage and description of an interference phenomenon. *J Virology* 1974; 14:1268-73.

230. Bendis I, Shapiro L. Properties of *Caulobacter* ribonucleic acid bacteriophage ϕ Cb5. *J Virol* 1970; 6:847-54.
231. Jones D, Sneath PHA. Genetic transfer and bacterial taxonomy. *Bacteriol Rev* 1970; 34:40-81.
232. Ray RK, Burma DP. Multiplication of bacteriophage P22 in penicillin-induced spheroplasts of *Salmonella typhimurium*. *J Virol* 1970; 5:45-50.
233. Ginzberg D, Padan E, Shilo M. Effect of cyanophage infection on CO₂ photoassimilation in *Plectonema boryanum*. *J Virol* 1968; 2:695-701.
234. Cross RA, Lieb M. Control of heat-inducible λ bacteriophage. *Genetics* 1967; 57:531-47.
235. Beard MA, Rountree PM. Bacteriophage inhibition in staphylococci. *J Gen Microbiol* 1965; 40:207-17.
236. Boyd JSK, Bidwell DE. The type A phages of *Salmonella typhimurium*: the significance of mixed clones arising from singly-infected bacteria. *J Gen Microbiol* 1964; 37:135-52.
237. Levy SB. Isologous interference with ultraviolet and x-ray irradiated bacteriophage T2. *J Bacteriol* 1964; 87:1330-8.
238. Schindler CA, Schuhardt VT. Lysostaphin: a new bacteriolytic agent for the *Staphylococcus*. *Proc Natl Acad Sci U S A* 1964; 51:414-21.
239. West B, Kelly FC, Shields DA. Effect of sodium chloride of *Staphylococcus*-phage relationships. *J Bacteriol* 10-1-1963; 86:773-80.
240. Boyd JSK, Bidwell DE. The Q1 (A) strains of *Salmonella typhimurium*: induction phenomena. *J Gen Microbiol* 1959; 21:635-51.
241. Williams RC, Fraser D. Structured and functional differentiation in T2 bacteriophage. *Virology* 1956; 2:289-307.
242. Dulbecco R. Appendix: On the reliability of the Poisson distribution as a distribution of the number of phage particles infecting individual bacteria in a population. *Genetics* 1949; 34:122-5.
243. Luria SE, Dulbecco R. Genetic recombinations leading to production of active bacteriophage from ultraviolet inactivated bacteriophage particles. *Genetics* 1949; 34:93-125.
244. Atterbury RJ. Bacteriophage biocontrol in animals and meat products. *Microb Biotechnol* 2009; 2:601-12.

245. Bull JJ, Millstein J, Orcutt J, Wichman HA. Evolutionary feedback mediated through population density, illustrated with viruses in chemostats. *Am Nat* 2006; 167:E39-E51.
246. Pennazio S. The origin of phage virology. *Riv Biol* 2006; 99:103-29.
247. Lenski RE. Dynamics of interactions between bacteria and virulent bacteriophage. *Adv Microbial Ecol* 1988; 10:1-44.
248. Davies FL, Gasson MJ. Bacteriophages of dairy lactic acid bacteria. In: Davies FL, Law BA, eds. *Advances in the Microbiology and Biochemistry of Cheese and Fermented Milk*. New York: Elsevier, 1984:127-51.
249. Wilson DB, Okabe A. A second function of the *S* gene of bacteriophage lambda. *J Bacteriol* 1982; 152:1091-5.
250. Douglas J. *Bacteriophages*. London: Chapman and Hall, 1975.
251. Meyvisch C, Teuchy H, Van Montagu M. Electron microscopy of the intracellular development of bacteriophage MS2 in *Escherichia coli*. *J Virol* 1974; 13:1356-67.
252. Barricelli NA. Limited genetic and functional participation in multiple infections by UV-irradiated wild-type T4 phages in competition with one unirradiated helper phage. *Genetics* 1969; 63:539-46.
253. Kutter EM, Wiberg JS. Biological effects of substituting cytosine for 5-hydroxymethylcytosine in the deoxyribonucleic acid of bacteriophage T4. *J Virol* 1969; 4:439-53.
254. Stahl FW, Murray NE, Nakata A, Crasemann JM. Intergenic cis-trans position effects in bacteriophage T4. *Genetics* 1966; 54:223-32.
255. Wentworth BB. Bacteriophage typing of the staphylococci. *Bacteriol Rev* 1963; 27:253-72.
256. Boyd JSK, Bidwell DE. Superinfection of lysogenic strains of *Salmonella typhimurium* Q1: prophage substitution and double lysogenization. *J Gen Microbiol* 1962; 29:659-86.
257. Nester EW, Spizizen J. Role of one-carbon precursors in the biosynthesis of deoxyribonucleic acid in bacteriophage-infected and growing cells of *Escherichia coli*. *J Bacteriol* 1961; 82:867-74.
258. Anderson TF. Bacterial viruses-structure and function. In: Gunsalus IC, Stanier RY, eds. *The Bacteria: Mechanisms of Adaptation*. New York: Academic Press, 1960:387-414.

259. Maio JJ, Zahler SA. Observations on the host-induced modification of T2 bacteriophage with special reference to the effects of α -keto acids. *J Bacteriol* 1958; 76:256-63.
260. Meynell GG. The effect of sudden chilling on *Escherichia coli*. *J Gen Microbiol* 1958; 19:380-9.
261. Krause RM. Studies on bacteriophages of hemolytic streptococci I. Factors influencing the interaction of phage and susceptible host cell. *J Exp Med* 1957; 106:365-83.
262. Adams MH, Park B. An enzyme produced by a phage-host cell system II. the properties of the polysaccharide depolymerase. *Virology* 1956; 2:719-36.
263. Brown A. A study of lysis in bacteriophage-infected *Escherichia coli*. *J Bacteriol* 1956; 71:482-90.
264. Bertani G. Studies on lysogenesis III. superinfection of lysogenic *Shigella dysenteriae* with temperate mutants of the carried phage. *J Bacteriol* 1954; 67:696-707.
265. Gross SR. Abortive infection of a strain of *Escherichia coli* by coliphage T2. *J Bacteriol* 1954; 68:36-42.
266. Latarjet R. The multiplication of bacterial viruses studies by radiobiological methods. In: Fildes P, Van Heyningen WE, eds. *The Nature of Virus Multiplication*. Cambridge, UK: Cambridge University Press, 1953:175-93.
267. Price WH. Phage formation in *Staphylococcus muscae* cultures. X. The relationship between virus synthesis, the release of bacterial ribonucleic acid, virus liberation, and cellular lysis. *J Gen Physiol* 1952; 35:409-21.
268. Hotchin JE. The influence of acridines on the interaction of *Staphylococcus aureus* and staphylococcus K phage. *J Gen Microbiol* 1951; 5:609-18.
269. Mudd S, Brodie AF, Winterscheid LC, Hartman PE, Beutner EH, McLean RA. Further evidence of the existence of mitochondria in bacteria. *J Bacteriol* 1951; 62:729-39.
270. Weigle JJ, Delbrück M. Mutual exclusion between an infecting phage and a carrier phage. *J Bacteriol* 1951; 62:301-18.
271. Cohen SS, Anderson TF. Chemical studies on host-virus interactions I. the effect of bacteriophage adsorption on the multiplication of its host, *Escherichia coli* B with an appendix giving some data on the composition of the bacteriophage, T2. *J Exp Med* 1946; 84:511-23.
272. Delbrück M. Bacterial viruses (bacteriophages). *Adv Enzymol* 1942; 2:1-32.
273. Doermann AH. Intracellular phage growth as studied by premature lysis. *Federation Proc* 1951; 10:591-4.

274. Heagy FC. The effect of 2,4-dinitrophenol and phage T2 on *Escherichia coli*. *J Bacteriol* 1950; 59:367-74.
275. Anderson TF. Morphological and chemical relations in viruses and bacteriophages. *Cold Spring Harbor Symp Quant Biol* 1946; 11:1-13.
276. Anderson TF. On a bacteriolytic substance associated with a purified bacterial virus. *J Cell Comp Physiol* 1945; 25:1-15.
277. Hoopes JT, Stark CJ, Kim HA, Sussman DJ, Donovan DM, Nelson DC. Use of a bacteriophage lysin, PlyC, as an enzyme disinfectant against *Streptococcus equi*. *Appl Environ Microbiol* 2009; 75:1388-94.
278. Azeredo J, Sutherland IW. The use of phages for the removal of infectious biofilms. *Curr Pharm Biotechnol* 2008; 9:261-6.
279. Mayer MJ, Narbad A, Gasson MJ. Molecular characterization of a *Clostridium difficile* bacteriophage and its cloned biologically active endolysin. *J Bacteriol* 2008; 190:6734-40.
280. Górski A, Borysowski J, Miedzybrodzki R, Weber-Dabrowska B. Bacteriophages in medicine. In: McGrath S, van Sinderen D, eds. *Bacteriophage: Genetics and Microbiology*. Norfolk, UK: Caister Academic Press, 2007:125-58.
281. Hermoso JA, Garcia JL, Garcia P. Taking aim on bacterial pathogens: from phage therapy to enzybiotics. *Curr Opin Microbiol* 2007; 10:461-72.
282. McAuliffe O, Ross RP, Fitzgerald GF. The new phage biology: from genomics to applications. In: McGrath S, van Sinderen D, eds. *Bacteriophage: Genetics and Microbiology*. Norfolk, UK: Caister Academic Press, 2007:1-41.
283. Baker JR, Liu C, Dong S, Pritchard DG. Endopeptidase and glycosidase activities of the bacteriophage B30 lysin. *Appl Environ Microbiol* 2006; 72:6825-8.
284. Donovan DM, Foster-Frey J, Dong S, Rousseau GM, Moineau S, Pritchard DG. The cell lysis activity of the *Streptococcus agalactiae* bacteriophage B30 endolysin relies on the cysteine, histidine-dependent amidohydrolase/peptidase domain. *Appl Environ Microbiol* 2006; 72:5108-12.
285. Jado I, Lopez R, Garcia E, Fenoll A, Casal J, Garcia P. Phage lytic enzymes as therapy for antibiotic-resistant *Streptococcus pneumoniae* infection in a murine sepsis model. *J Antimicrob Chemother* 2003; 52:967-73.
286. Schuch R, Nelson D, Fischetti VA. A bacteriolytic agent that detects and kills *Bacillus anthracis*. *Nature* 2002; 418:884-9.

287. Nelson D, Loomis L, Fischetti VA. Prevention and elimination of upper respiratory colonization of mice by group A streptococci by using a bacteriophage lytic enzyme. *Proc Natl Acad Sci USA* 2001; 98:4107-12.
288. Shearman CA, Hertwig S, Teuber M, Gasson MJ. Characterization of the prolate-headed lactococcal bacteriophage ØvML3: location of the lysin gene and its DNA homology with other prolate-headed phages. *Microbiology* 1991; 137:1285-91.
289. de Mars Cody J, Conway TW. Defective lysis of streptomycin-resistant *Escherichia coli* cells infected with bacteriophage f2. *J Virol* 1981; 37:813-20.
290. Fischetti VA, Gotschlich EC, Bernheimer AW. Purification and physical properties of group C streptococcal phage-associated lysin. *J Exp Med* 1971; 133:1105-17.
291. Huff E, Silverman CS. Lysis of *Staphylococcus aureus* cell walls by a soluble staphylococcal enzyme. *J Bacteriol* 1968; 95:99-106.
292. Kohler PL, Hamilton HL, Cloud-Hanson K, Dillard JP. AtlA functions as a peptidoglycan lytic transglycosylase in the *Neisseria gonorrhoeae* type IV secretion system. *J Bacteriol* 2007; 189:5421-8.
293. Loessner MJ. Bacteriophage endolysins-current state of research and applications. *Curr Opin Microbiol* 2005; 8:480-7.
294. Zink R, Loessner MJ, Scherer S. Characterization of cryptic prophages (monocins) in *Listeria* and sequence analysis of a holin/endolysin gene. *Microbiology* 1995; 141:2577-84.
295. Ronda-Lain C, Lopez R, Tapia A, Tomasz A. Role of the pneumococcal autolysin (murein hydrolase) in the release of progeny bacteriophage and in the bacteriophage-induced lysis of the host cells. *J Virol* 1977; 21:366-74.
296. Ralston DJ, Mcivor M. Cell-wall lysins of *Staphylococcus aureus* strains induced by specific typing phages. *J Bacteriol* 1964; 88:667-75.
297. Ralston DJ, Mcivor M. Lysis-from-without of *Staphylococcus aureus* strains by combinations of specific phages and phage-induced lytic enzymes. *J Bacteriol* 1964; 88:676-81.
298. Ralston DJ, Baer BS. Inhibitory action of phage K on staphylococcal dehydrogenases I. effect on various strains of *Staphylococcus aureus*, including members of the phage-typing series. *J Bacteriol* 1963; 86:666-72.
299. Ralston DJ, Baer B, Lieberman M, Krueger AP. Virolysin, a virus-induced lysin: its appearance and function in phage-infected Staphylococci. *J Gen Microbiol* 1961; 24:313-25.

300. Ralston DJ, Baer BS, Lieberman M, Krueger AP. Lysis from without of *S. aureus* K₁ by the combined action of phage and virolysin. *J Gen Physiol* 1957; 41:343-58.
301. Ralston DJ, Lieberman M, Baer B, Krueger AP. Staphylococcal virolysin: a phage-induced lysin its differentiation from the autolysin of normal cells. *J Gen Physiol* 1957; 40:791-807.
302. Ralston DJ, Baer B, Lieberman M, Krueger AP. Virolysin: a virus-induced lysin from staphylococcal phage lysates. *Proc Soc Exp Biol Med* 1955; 89:502-7.
303. Parada V, Herndl GJ, Weinbauer MG. Viral burst size of heterotrophic prokaryotes in aquatic systems. *J Mar Biol Assoc U K* 2006; 86:613-21.
304. Weinbauer MG. Ecology of prokaryotic viruses. *FEMS Microbiol Rev* 2004; 28:127-81.
305. Wommack KE, Colwell RR. Virioplankton: viruses in aquatic ecosystems. *Microbiol Mol Biol Rev* 2000; 64:69-114.
306. Steward GF, Smith DC, Azam F. Abundance and production of bacteria and viruses in the Bering and Chukchi sea. *Mar Ecol Prog Ser* 1996; 131:287-300.
307. Bratbak G, Heldal M, Naess A, Røeggen T. Viral impact on microbial communities. In: Guerrero R, Pedros-Alio C, eds. *Trends in Microbial Ecology*. Barcelona: Spanish Society for Microbiology, 1993:299-302.
308. Bratbak G, Heldal M, Thingstad TF, Riemann B, Haslund OH. Incorporation of viruses into the budget of microbial C-transfer. A first approach. *Mar Ecol Prog Ser* 1992; 83:273-80.
309. Heldal M, Bratbak G. Production and decay of viruses in aquatic environments. *Mar Ecol Prog Ser* 1991; 72:205-12.