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## REFERENCES

1. **Butcher, S. J., T. Dokland, P. M. Ojala, D. H. Bamford, and S. D. Fuller.** 1997. Intermediates in the assembly pathway of the double-stranded RNA virus φ6. *EMBO J.* **16**:4477-4487.
2. **Butcher, S. J., J. M. Grimes, E. V. Makeyev, D. H. Bamford, and D. I. Stuart.** 2001. A mechanism for initiating RNA-dependent RNA polymerization. *Nature* **410**:235-240.
3. **Butcher, S. J., E. V. Makeyev, J. M. Grimes, D. I. Stuart, and D. H. Bamford.** 2000. Crystallization and preliminary X-ray crystallographic studies on the bacteriophage Φ6 RNA-dependent RNA polymerase. *Acta Cryst.* **56**:1473-1475.
4. **Casini, G., X. Qiao, and L. Mindich.** 1994. Reconstitution of active replicase in procapsids of the segmented dsRNA bacteriophage Φ6. *Virology* **204**:251-253.
5. **Chao, L., T. T. Tran, and T. T. Tran.** 1997. The advantage of sex in the RNA virus Φ6. *Genetics* **147**:953-959.
6. **Day, L. A., and L. Mindich.** 1980. The molecular weight of bacteriophage Φ6 and its nucleocapsid. *Virology* **103**:376-385.
7. **de Haas, F., A. O. Paatero, L. Mindich, D. H. Bamford, and S. D. Fuller.** 1999. A symmetry mismatch at the site of RNA packaging in the polymerase complex of dsRNA bacteriophage φ6. *J. Mol. Biol.* **294**:357-372.
8. **Dijk, A. A. V., M. Frilander, and D. H. Bamford.** 1995. Differentiation between minus- and plus-strand synthesis: polymerase activity of dsRNA bacteriophage Φ6 in an in vitro packaging and replication system. *Virology* **211**:320-323.

9. **Frilander, M., and D. H. Bamford.** 1995. In vitro packaging of the single-stranded RNA genomic precursors of the segmented double-stranded RNA bacteriophage Φ6: The three segments modulate each other's packaging efficiency. *J. Mol. Biol.* **246**:418-428.
10. **Frilander, M., P. Gottlieb, J. Strassman, D. H. Bamford, and L. Mindich.** 1992. Dependence of minus strand synthesis upon complete genomic packaging in the dsRNA bacteriophage Φ6. *J. Virol.* **66**:5013-5017.
11. **Gottlieb, P., C. Potgieter, H. Wei, and I. Toporovsky.** 2002. Characterization of Φ12, a bacteriophage related to Φ6: nucleotide sequence of the large double-stranded RNA (dsRNA). *Virology* **295**:266-271.
12. **Gottlieb, P., X. Qiao, J. Strassman, M. Frilander, and L. Mindich.** 1994. Identification of the packaging regions within the genomic RNA segments of bacteriophage Φ6. *Virology* **200**:42-47.
13. **Gottlieb, P., J. Strassman, and L. Mindich.** 1992. Protein P4 of the bacteriophage Φ6 procapsid has a nucleoside triphosphate-binding site with associated nucleoside triphosphate phosphohydrolase activity. *J. Virol.* **66**:6220-6222.
14. **Gottlieb, P., J. Strassman, X. Qiao, A. Frucht, and L. Mindich.** 1990. In vitro replication, packaging and transcription of the segmented dsRNA genome of bacteriophage Φ6 : studies with procapsids assembled from plasmid encoded proteins. *J. Bacteriol.* **172**:5774-5782.

15. **Gottlieb, P., H. Wei, C. Potgieter, and I. Toporovsky.** 2002. Characterization of  $\Phi$ 12, a bacteriophage related to  $\Phi$ 6: nucleotide sequence of the small and middle double-stranded RNA. *Virology* **293**:118-124.
16. **Grimes, J. M., J. N. Burroughs, P. Gouet, J. M. Diprose, R. Malby, S. Zientara, P. P. C. Mertens, and D. I. Stuart.** 1998. The atomic structure of the bluetongue virus core. *Nature* **395**:470-478.
17. **Hoogstraten, D., X. Qiao, Y. Sun, A. Hu, S. Onodera, and L. Mindich.** 2000. Characterization of  $\Phi$ 8, a bacteriophage containing three double-stranded RNA genomic segments and distantly related to  $\Phi$ 6. *Virology* **272**:218-224.
18. **Johnson, M. D., III, and L. Mindich.** 1994. Plasmid directed assembly of the lipid-containing membrane of bacteriophage  $\phi$ 6. *J. Bacteriol.* **176**:4124-4132.
19. **Juuti, J. T., and D. H. Bamford.** 1997. Protein P7 of phage  $\Phi$ 6 RNA polymerase complex, acquiring of RNA packaging activity by in vitro assembly of the purified protein onto deficient particles. *J. Mol. Biol.* **266**:891-900.
20. **Juuti, J. T., D. H. Bamford, R. Tuma, and G. J. T. Jr.** 1998. Structure and NTPase activity of the RNA-translocating protein (P4) of bacteriophage  $\phi$ 6. *J. Mol. Biol.* **279**:347-359.
21. **Kainov, D. E., S. J. Butcher, D. H. Bamford, and R. Tuma.** 2003. Conserved intermediates on the assembly pathway of double-stranded RNA bacteriophages. *J Mol Biol* **328**:791-804.
22. **Kainov, D. E., M. Pirttimaa, R. Tuma, S. J. Butcher, G. J. Thomas, D. H. Bamford, and E. V. Makeyev.** 2003. RNA packaging device of dsRNA

bacteriophages: Possibly as simple as hexamer of P4 protein. J Biol Chem. in press

23. **Kirkegaard, K., and D. Baltimore.** 1986. The mechanism of RNA recombination in poliovirus. *Cell* **47**:433-443.
24. **Makeyev, E. V., and D. H. Bamford.** 2000. Replicase activity of purified recombinant protein P2 of double-stranded RNA bacteriophage phi6. *EMBO J.* **19**:124-131.
25. **Mindich, L.** 1988. Bacteriophage Φ6: A unique virus having a lipid-containing membrane and a genome composed of three dsRNA segments, p. 137-176. *In* K. Maramorosch, F. A. Murphy, and A. J. Shatkin (ed.), *Advances in Virus Research*, vol. 35. Academic Press, New York.
26. **Mindich, L.** 1996. Heterologous recombination in the segmented dsRNA genome of bacteriophage Φ6. *Seminars in Virology* **7**:389-397.
27. **Mindich, L.** 1999. Precise packaging of the three genomic segments of the double-stranded-RNA bacteriophage Φ6. *Microbiol. Mol. Biol. Rev.* **63**:149-160.
28. **Mindich, L.** 1999. Reverse genetics of the dsRNA bacteriophage Φ6. *Adv. in Virus Research* **53**:341-353.
29. **Mindich, L., and D. H. Bamford.** 1988. Lipid-containing bacteriophages, p. 475-520. *In* R. Calendar (ed.), *The Bacteriophages*, Vol.2. Plenum Publishing Corporation, New York and London.
30. **Mindich, L., X. Qiao, S. Onodera, P. Gottlieb, and M. Frilander.** 1994. RNA structural requirements for stability and minus strand synthesis in the dsRNA bacteriophage Φ6. *Virology* **202**:258-263.

31. **Mindich, L., X. Qiao, J. Qiao, S. Onodera, M. Romantschuk, and D. Hoogstraten.** 1999. Isolation of additional bacteriophages with genomes of segmented double-stranded RNA. *J. Bacteriol.* **181**:4505-4508.
32. **Olkonen, V. M., P. Gottlieb, J. Strassman, X. Qiao, D. H. Bamford, and L. Mindich.** 1990. In vitro assembly of infectious nucleocapsids of bacteriophage Φ6: Formation of a recombinant double-stranded RNA virus. *Proc. Natl. Acad. Sci. USA* **87**:9173-9177.
33. **Olkonen, V. M., P. Ojala, and D. H. Bamford.** 1991. Generation of infectious nucleocapsids by in vitro assembly of the shell protein onto the polymerase complex of the dsRNA bacteriophage Φ6. *J. Mol. Biol.* **218**:569-581.
34. **Onodera, S., V. M. Olkonen, P. Gottlieb, J. Strassman, X. Qiao, D. H. Bamford, and L. Mindich.** 1992. Construction of a transducing virus from dsRNA bacteriophage Φ6 : establishment of carrier states in host cells. *J. Virol.* **66**:190-196.
35. **Onodera, S., X. Qiao, P. Gottlieb, J. Strassman, M. Frilander, and L. Mindich.** 1993. RNA structure and heterologous recombination in the dsRNA bacteriophage Φ6. *J. Virol.* **67**:4914-4922.
36. **Onodera, S., X. Qiao, J. Qiao, and L. Mindich.** 1998. Directed changes in the number of dsRNA genomic segments in bacteriophage Φ6. *Proc. Nat. Acad. Sci. USA* **95**:3920-3924.
37. **Onodera, S., X. Qiao, J. Qiao, and L. Mindich.** 1998. Isolation of a mutant that changes genomic packaging specificity in Φ6. *Virology* **252**:438-442.

38. **Onodera, S., Y. Sun, and L. Mindich.** 2001. Reverse genetics and recombination in  $\Phi$ 8, a dsRNA bacteriophage. *Virology* **286**:113-118.
39. **Pirittimaa, M. J., and D. H. Bamford.** 2000. RNA secondary structures of the bacteriophage phi6 packaging regions. *RNA* **6**:880-889.
40. **Poranen, M. M., A. O. Paatero, R. Tuma, and D. H. Bamford.** 2001. Self-assembly of a viral molecular machine from purified protein and RNA constituents. *Mol. Cell* **7**:845-854.
41. **Qiao, X., G. Casini, J. Qiao, and L. Mindich.** 1995. In vitro packaging of individual genomic segments of bacteriophage  $\Phi$ 6 RNA: serial dependence relationships. *J. Virol.* **69**:2926-2931.
42. **Qiao, X., J. Qiao, and L. Mindich.** 2003. Analysis of the specific binding involved in genomic packaging of the dsRNA bacteriophage  $\Phi$ 6. *J. Bacteriol.* **185**:6409-6414.
43. **Qiao, X., J. Qiao, and L. Mindich.** 1997. An in vitro system for the investigation of heterologous RNA recombination. *Virology* **227**:103-110.
44. **Qiao, X., J. Qiao, and L. Mindich.** 1995. Interference of bacteriophage  $\Phi$ 6 genomic RNA packaging by hairpin structures. *J. Virol.* **69**:5502-5505.
45. **Qiao, X., J. Qiao, and L. Mindich.** 1997. Stoichiometric packaging of the three genomic segments of dsRNA bacteriophage  $\Phi$ 6. *Proc. Natl. Acad. Sci. USA* **94**:4074-4079.
46. **Qiao, X., J. Qiao, S. Onodera, and L. Mindich.** 2000. Characterization of  $\Phi$ 13, a bacteriophage related to  $\Phi$ 6 and containing three dsRNA genomic segments. *Virology* **275**:218-224.

47. **Semancik, J. S., A. K. Vidaver, and J. L. Van Etten.** 1973. Characterization of a segmented double-helical RNA from bacteriophage Φ6. *J. Mol. Biol.* **78**:617-625.
48. **Sun, Y., X. Qiao, and L. Mindich.** 2004. Construction of carrier state viruses with partial genomes of the segmented dsRNA bacteriophages. *Virology* **319**:274-279..
49. **Sun, Y., X. Qiao, J. Qiao, S. Onodera, and L. Mindich.** 2003. Unique properties of the inner core of bacteriophage phi8, a virus with a segmented dsRNA genome. *Virology* **308**:354-61.
50. **Taraporewala, Z., D. Chen, and J. T. Patton.** 1999. Multimers formed by the rotavirus nonstructural protein NSP2 bind to RNA and have nucleoside triphosphatase activity. *J. Virol.* **73**:9934-9943.
51. **Tuma, R., J. K. Bamford, D. H. Bamford, and G. J. Thomas, Jr.** 1999. Assembly dynamics of the nucleocapsid shell subunit (P8) of bacteriophage phi6. *Biochemistry* **38**:15025-33.
52. **Vidaver, A. K., R. K. Koski, and J. L. Van Etten.** 1973. Bacteriophage Φ6 : a lipid-containing virus of *Pseudomonas phaseolicola*. *J. Virol.* **11**:799-805.
53. **Yang, H., E. V. Makeyev, and D. H. Bamford.** 2001. Comparison of polymerase subunits from double-stranded RNA bacteriophages. *J. Virol.* **75**:11088-11095.