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## Protocol collection: Phage DNA isolation and chemical analysis

 [PubPub](#)

DOI

<https://dx.doi.org/10.17504/protocols.io.e6nvwj6w2lmk/v1>

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**Protocol status:** Working

**We use this collection and it's working**

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**Keywords:** phage genome modifications with mass spectrometry, phage dna isolation, chemical analysis bacteriophage, phage genome modification, analysis of phage nucleoside, phage nucleoside, bacteriophage, phage growth, phage, mass spectrometry, liquid chromatography, high performance liquid chromatography, degradation by bacterial immune system, performance liquid chromatography, bacterial immune system, dna extraction, bacteria, genome

## Abstract

Bacteriophages (phages) are viruses that infect bacteria. Some phages chemically modify their genomes to protect them from degradation by bacterial immune systems. We can detect phage genome modifications with mass spectrometry (MS) and high-performance liquid chromatography (HPLC) of phage nucleosides. This collection contains protocols for the entire process: phage growth and concentration, DNA extraction, and chemical analysis of phage nucleosides. We optimized these protocols using *E. coli* phage T4 and *B. subtilis* phage SPO1.



## Files

### Protocol

NAME

**Phage amplification and concentration**

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### Protocol

NAME

**Phage DNA extraction with Monarch kit and digestion to single nucleosides**

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### Protocol

NAME

**Phage DNA extraction with phenol-chloroform and digestion to single nucleosides**

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### Protocol

NAME

**Nucleoside analysis with high performance liquid chromatography (HPLC)**

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## Protocol

NAME

**Nucleoside analysis with liquid chromatography–tandem mass spectrometry (LC–MS/MS)**

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