

# A Novel Reverse Transcriptase Enzyme

ID# 2016-4464



PennState



PCV1 is Purified from Jalapeno Pepper

## Technology Summary

An RNA dependent RNA polymerase (RdRp) was developed comprising RT activity for use in producing cDNA from double stranded RNA (dsRNA). The RdRp, which originated from PCV1 virus, contains a domain that is similar to a domain found in RT enzymes. The RdRp functions as a RT enzyme that works on dsRNA at room temperature and will be suitable for use as a RT without the inconveniences of a retrovirus-derived RT enzyme. This invention also includes methods of making the RT proteins. These methods comprise both isolating the virus that comprises the RdRp from the host and using isolated particles for performing reverse transcription, or by producing the protein recombinantly. Producing the protein recombinantly requires introducing an expression vector encoding the RdRp into suitable host cells. Any dsRNA can be used as a template for cDNA production using the approaches of this invention.

## Application & Market Utility

Technique to covert dsRNA into cDNA is more efficient than other methods. No need for toxic chemicals. No need to reach or maintain high temperature levels. Greater maintenance of enzyme fidelity during conversion to DNA compared to other techniques. Greater efficiency and consistency in converting dsRNA into ssDNA than other techniques

## Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

1-3

### Seeking

Investment | Licensing |

### Keywords

- double-stranded RNA
- Reverse transcriptase
- cDNA
- CRISPR
- virology

### Researchers

#### Marilyn J. Roossinck

Professor, Plant Pathology and Environmental Microbiology

[Online Bio](#)

#### Mahtab Peyambari

Visiting Scholar

[Website](#)

### Originating College

College of Agricultural Sciences

### Office of Technology Management Contact

Long, Melissa  
mkl137@psu.edu  
814-865-5730



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at [invent.psu.edu](http://invent.psu.edu).

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.