

# Fact file: Tobacco Mosaic Virus

## What are the symptoms?

*Tobacco mosaic virus* (TMV) infects plants and causes a mosaic pattern of brown spots on the surface of leaves. TMV doesn't usually cause the plant to die, but can seriously stunt its growth.

Some leaves can look as if they have been burned. This is where the virus has killed parts of the leaf.

**Q: Can you think of any human diseases that look similar to this plant disease?**

**Q: Why do you think they look similar?**

## What does it look like?

TMV is rod shaped. TMV is very small! It measures 300 nanometers long and 18 nanometers wide. This means that 500,000 TMV viruses could fit into the length (15cm) of 1 unsharpened pencil!

**Q: How do you think this would help the virus spread around a plant?**

TMV is composed of two main parts:

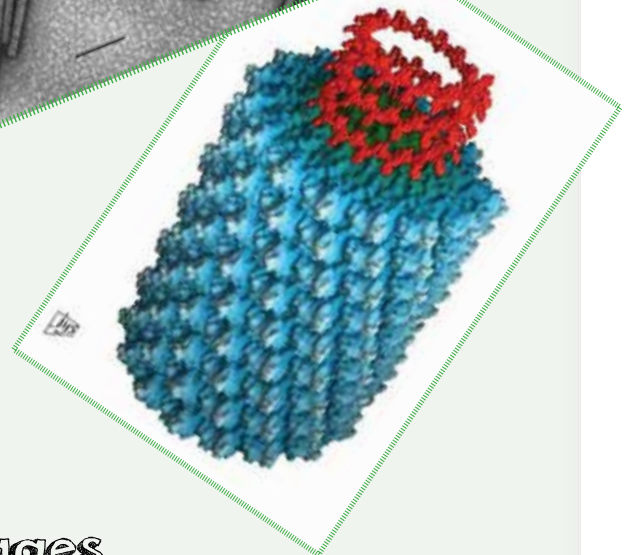
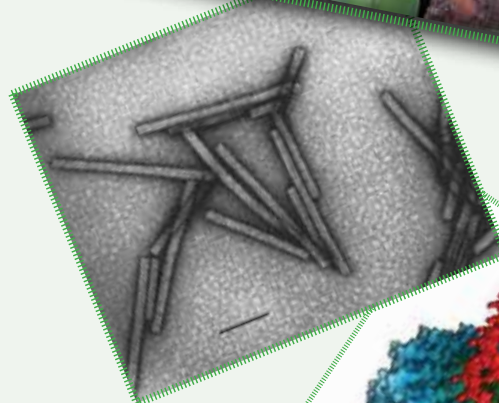
### 1. Coat blocks

2139 identical protein coat blocks protect the virus code.

### 2. Virus code

This code fits inside the coat blocks. It confuses plant cells and forces them to make more viruses.

- Q: Can you make a model of TMV?**  
**Q: Why do you think the coat blocks are all the same?**  
**Q: How would this speed up viral reproduction?**



## Images

1. TMV symptoms on orchid leaves by the USDA Forest Service, Department of Plant Pathology Archive, North Carolina State University, Bugwood.org
2. Image by Professor Hans-Wolfgang Ackermann, ICTVdB Index of Viruses
3. TMV image: Grasp image by J.Y. Sgro, UW-Madison, from PDB data 1VTM

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