

## Technology Offer

### Barley yellow mosaic virus disease – Potential for generating resistant plants and markers for selection

#### Abstract

Provided is a gene conferring resistance against Barley Yellow mosaic virus (BaYMV) and Barley mild mosaic virus (BaMMV). Plants can be selected based on the marker which is also a valid aspect of the introduced invention.

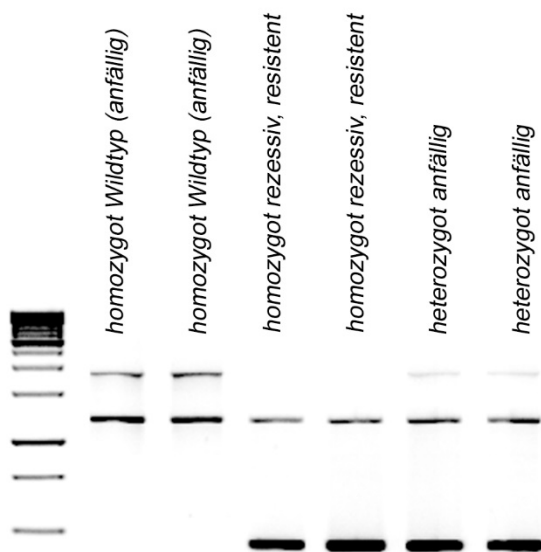
#### Background

Yellow mosaic virus disease leads to substantial losses - up to 50 % of the yield - in susceptible barley varieties (*Hordeum vulgare*). The disease is caused by different strains of Barley yellow mosaic virus (BaYMV) and Barley mild mosaic virus (BaMMV).

#### Problem/Solution

The diseases cannot be cured by chemical treatment. The sequence of the locus Rym4/Rym5 conferring resistance is already known, however this resistance has been overcome by mutations of the virus.

The present invention provides a new recessive resistance gene. Variants of the gene lead to resistance against all agents known to cause yellow mosaic virus disease in Europe. Furthermore gene based markers for effective selection of resistant plants are provided. One example is shown in Figure 1.



**Figure 1:** electrophoretic separation of DNA of susceptible, homozygote recessive resistant and susceptible heterozygote barley plants

#### A technology of the



#### Technology/ Application

- Breeding
- Marker
- Plant Biotechnology

#### Market

- Agriculture
- Farming

#### Developmental Stage

Proof-of-concept

#### Patent Status

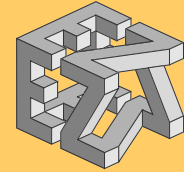
Patent granted

Reference No.: - IPK-21 -

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### Advantages over the state-of-the-art

The resistance gene can confer resistance to barley. Due to a new mechanism, plants will stay resistant. The pathogen will not be able to break it. The underlying gene has been identified.

Applying the corresponding marker, resistant plants can easily be selected.

### Cooperation options

ESA PVA is - in the name of the IPK - seeking partners who would be interested in applying the marker for the selection of resistant plants as well as in further developing the resistance. Scientific assistance for an industrial partner can be assured in a proper way within the frame of further development for the market and market entry.

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