Illuminating SBWMV-host interaction: Subcellular localization of viral proteins during infection

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Soil-borne cereal viruses cause substantial crop losses and therefore represent an extensive threat for agriculture in Europe, Asia and America. The bipartite Furovirus *Soil-borne wheat mosaic virus* (SBWMV) infects several crop species like wheat, rye or barley and is transmitted by a soil-borne plasmodiophorid, called *Polymyxa graminis*. Resistances against Furovirus infection are barely described, in wheat for e.g. the Sbm1 and Sbm2 genes encode for a translocation resistance, which restricts the infection to the plant roots. The infection of the roots or the translocation of the virus into upper plant tissues depends on the viral movement protein (MP) and coat protein – readthrough (CP-RT) protein.

In this study, we modified a SBWMV cDNA clone to express MP:GFP and CP-RT:GFP fusion proteins to uncover their subcellular localization and illuminate their specific functions during virus infection. Both genes were fused to GFP and the modified cDNA clones were used as templates for RNA synthesis. *In-vitro* produced viral RNA was used for infection of different host plants and the fluorescent proteins were localized by confocal laser-scanning microscopy (CLSM).

Further experiments will aim at identifying host components, which are involved in the infection process. This knowledge could provide new ideas for the development of resistance strategies against soil-borne viruses.