Table 1
Selected Species in the Genus *Tombusvirus*[a]

Artichoke mottled crinkle (AMCV)
Carnation Italian ringspot (CIRV)
Cucumber necrosis (CNV)
Cymbidium ringspot (CymRSV)
Eggplant mottled crinkle (EMCV)
Moroccan pepper (MPV)
Pelargonium leaf curl (PLCV)
Petunia asteroid mosaic (PAMV)
Tomato bushy stunt (TBSV)

[a]*See* **ref. *8*** for complete list and references.

Tombusviruses have isometric particles ca. 30 nm in diameter, with a somewhat rounded outline and a surface structure poorly resolved in the electron microscope. Virions are T = 3 icosahedra consisting of 180 identical structural subunits, clustered in dimers to give rise to 90 morphological units. The structural subunit is folded into distinct domains: R, the N-terminal internal domain interacting with RNA; a, a connecting arm; S, the shell domain constituting the capsid backbone; and P, the C-terminal domain connected by a short hinge to the S domain and protruding in pairs from the particle surface to form 90 projections ***(6)***. The P domain determines the immunological and other biological properties of the virions.

Tombusvirus genome is constituted by a linear single-stranded monopartite RNA molecule of positive-sense ca. 4700 nucleotides (nt) long, which contains five open reading frames (ORF) coding for proteins with an approximate mol wt of 33, 92, 41, 22, and 19 kDa (**Fig. 1**). Translation products of ORFs 1 and 2 are expressed by genomic-length viral RNA; ORF 3, and ORFs 4 and 5 are expressed through two 3' coterminal subgenomic RNAs of ca. 2.2 and 1.0 kb, respectively. The readthrough domain of ORF 2 is the viral RNA-dependent RNA polymerase, because it contains the eight conserved motifs (PI–PVIII) that characterize the RNA polymerase of supergroup II of positive-sense RNA viruses ***(7)***. The product of ORF 3 is the capsid protein. The protein encoded by ORF 4 is the movement protein involved in the cell-to-cell spread of virus in infected tissues. The functions of translation products of ORFs 1 and 5 are not yet established with certainty; however, circumstantial evidence suggests that the product of ORF 1 may be responsible for intracellular localization of the viral replicative structures and that of ORF 5 carries determinants affecting severity of symptoms. Artificial viral mutants that cannot express ORF 5 are still infectious, but induce milder symptoms, compared to wild-type. Conversely, the presence of ORF 1 is an absolute prerequisite for viral viability ***(8)***.