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**Structural elements in the Gag polyprotein of feline immunodeficiency virus involved in Gag self-association and assembly**

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**Abstract**

The Gag polyprotein of feline immunodeficiency virus (FIV) assembles at the plasma membrane of the infected cells. Since the FIV Gag domains whose interaction promotes Gag multimerization have not been identified, we generated a series of Gag subdomains which were tested for their ability to associate with full-length Gag and be recruited into extracellular virus-like particles (VLPs). Removal from FIV Gag of the C-terminal 37 residues as well as deletion of the amino and central regions of the nucleocapsid (NC) domain attenuated but did not abrogate association with wild-type Gag, whereas a Gag mutant encompassing the matrix (MA) and capsid (CA) domains interacted poorly with full-length Gag. Association with wild-type Gag was abolished by deleting most of the NC together with the N-terminal 40 residues of the MA, which most likely reflects the inability of this Gag mutant to bind RNA. Of note, the CA-NC Gag subdomain associated with wild-type Gag and was recruited into particles in a proportion close to 50% of the total Gag-related protein mass of VLPs. Moreover, both a Gag protein lacking the C-terminal p2 peptide and a nonmyristoylated version of the polyprotein exhibited a transdominant negative effect on the assembly of wild-type Gag. Analysis of Gag mutants carrying internal deletions within the CA revealed that N-terminal as well as C-terminal domains of the CA are necessary for assembly. Our results demonstrate that the FIV CA-NC region constitutes the principal self-interaction domain of Gag and that the RNA-binding capacity of Gag is necessary for its multimerization.

Keywords:

* [**Feline immunodeficiency virus**](http://vir.sgmjournals.org/search?fulltext=Feline+immunodeficiency+virus&sortspec=date&submit=Submit&andorexactfulltext=phrase)
* [**Gag polyprotein**](http://vir.sgmjournals.org/search?fulltext=Gag+polyprotein&sortspec=date&submit=Submit&andorexactfulltext=phrase)
* [**Lentivirus assembly**](http://vir.sgmjournals.org/search?fulltext=Lentivirus+assembly&sortspec=date&submit=Submit&andorexactfulltext=phrase)