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Erratum

The publishers would like to apologize for an error that occurred in-

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Structures and Mechanisms of Viral Membrane Fusion Proteins: Multiple Variations on a Common Theme

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Unfortunately, in the column 'Class II', 'Masked in trimer…' should have read 'Masked in dimer…'. Please see the correct version of Table 2 below.

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TABLE 2
Properties of Class I, Class II, and III fusion proteins

Property	Class I	Class II	Class III
Examples	Influenza HA, Paramyxovirus F	TBEV E, SFV E1/E2	VSV G, HSV-1 gB
Type of integral membrane protein	Type I	Type I[a]	Type I
Requires proteolytic processing to generate fusion competent form	Yes[b] (of fusion protein)	Yes (ofaccessory protein[c])	No[d]
Metastable on virion	Yes	Yes	VSV G, No; HSV-1 gB Not known
Orientation with respect to viral membrane	Perpendicular (project as a spike)	Parallel (close to viral membrane)	VSV G, Perpendicular; HSV-1 gB, Not known[e]
Major secondary structure (of native fusion subunit)	$\alpha-$helix	β-sheet	α-helix and β-sheet
Oligomeric structure of native fusion protein	Trimer	Dimer	VSV G, Trimer; HSV-1 gB, Not known[e,f]
Location of fusion peptide in native fusion protein	Buried in subunit interface	Masked in dimer interface, at tip of extended β-strands	VSV G, Exposed, at tips of extended β-strands; HSV-1 gB, Not known

(Continued on next page)

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TABLE 2
Properties of Class I, Class II, and III fusion proteins *(Continued)*

Property	Class I	Class II	Class III
Location of fusion peptide in primary sequence	At or near N-terminus	Internal	Internal (bipartite)[g]
Activated to fusogenic form by	Low pH, receptor(s), or receptor followed by low pH[h]	Low pH	VSV G, Low pH; HSV-1 gB, Receptors[i]
Oligomeric structure of fusion-active form (membrane-embedded prehairpin and bundles)	Trimer	Trimer	Trimer[j]
Structure of the post-fusion form	Trimer-of-hairpins (central α-helical coiled-coil, 6HB)	Trimer-of-hairpins (mainly β-structure)	Trimer-of-hairpins (central α-helical coiled-coil and significant β-structure)[k]

This table was updated from Table 2 of (Earp *et al*., 2005). See text and Table 1 for more details and additional references.

(a) The fusion subunits of all flaviviruses except HCV have two membrane spanning domains near its C-terminii.

(b) Proteolytic processing into two subunits is required by many class I fusion proteins (*e.g*., influenza HA, paramyxovirus F). For others (*e.g*., Ebola virus GP) processing into the two subunits occurs for the wt protein, but is not essential for infection (Neumann *et al*., 2007; Wool-Lewis and Bates, 1999). Some coronavirus S precursors are (*e.g*., MHV, Qiu *et al*., 2006), whereas others (*e.g*., SARS S) are not, proteolytically processed during biosynthesis. For these latter coronaviruses S proteins as well as for Ebola virus GP and Hendra and Nipah virus F, post synthetic cleavage by extracellular or intracellular (*e.g*., endosomal cathepsins) proteases may substitute (Chandran *et al*., 2005; Follis *et al*., 2006; Matsuyama *et al*., 2005; Pager *et al*., 2006; Pager and Dutch, 2005; Schornberg *et al*., 2006; Simmons *et al*., 2005).

(c) p62 (precursor to E2) in the case of SFV; prM in the case of TBEV.

(d) Neither VSV G nor HSV-1 gB are proteolytically processed. Bovine herpesvirus gB and human cytomegalovirus gBs are processed, but processing is not needed for cell entry (Kopp *et al*., 1994; Strive *et al*., 2002).

(e) The pre-fusion form of gB is thought to be a trimer that projects from the virion surface.

(f) The recently determined crystal structure of HSV-1 gB (Heldwein *et al*., 2006) is thought to represent its post-fusion form (Heldwein *et al*., 2006; Lin and Spear, 2007). The structure of the (presumed) pre-fusion trimer is not yet known.

(g) The fusion peptides of VSV G and HSV-1 gB are comprised of two loop found at the tips of two neighboring β-strands.

(h) Ebola GP has been suggested to use a fourth fusion trigger, a cathepsin dependent activity (Chandran *et al*., 2005; Kaletsky *et al*., 2007; Schornberg *et al*., 2006).

(i) Some strains of herpesviruses require (additional) exposure to low pH in some cell types (Delboy *et al*., 2006).

(j) The post-fusion forms of VSV G and HSV-1 gB are trimers. It is thought that their respective membrane embedded prehairpins are trimers.

(k) The post-fusion form of VSV G contains a small 6HB; the apparently post fusion form of HSV-1 gB does not.

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